

Tab VI – Quality

QUALITY CONTROL PLAN

Dover Dam, OH Dam Safety Assurance Program Evaluation Report 7 August 2006

1. SCOPE:

This Quality Control Plan (QCP) shall identify the policy and procedures that will be implemented for the preparation of the Dam Safety Assurance Program (DSAP) Evaluation Report for Dover Dam.

2. PURPOSE AND APPLICABILITY:

The purpose of this QCP is to ensure that a quality product is being produced and that the completed report meets the requirements of all applicable USACE criteria, regulations, and standards. This plan defines the responsibilities of the Project Delivery Team (PDT) and the Independent Technical Review Team (ITRT). It is applicable to the preparation of the DSAP Evaluation Report for Dover Dam, OH.

3. GENERAL INFORMATION:

- | | |
|-------------------------------|---|
| A. <u>Type of Project:</u> | Dam Safety Assurance Program – Evaluation Report |
| B. <u>Location:</u> | Dover Dam, OH – Tuscarawas River |
| C. <u>Authority:</u> | Flood Control Act of 1939, Section 1203 of Water Resources Development Act of 1986 |
| D. <u>Technical Criteria:</u> | The report is being prepared based on the requirements in EC 1110-2-6061, Safety of Dams – Policy and Procedures. Note that this EC has expired but verbal direction was given to follow this guidance until it is published as ER 1110-2-1156. |

4. PROJECT DESCRIPTION:

Dover Dam is a concrete gravity dam founded on bedrock. The dam has been determined to have dam safety deficiencies that fall under the hydrologic and “state-of-the-art” nature as described in EC 1110-2-6061. The DSAP Evaluation Report shall be prepared in accordance with Chapter 8 and Appendix G of this EC and all other pertinent USACE guidance. The

evaluation report shall determine the Base Safety Condition, Recommended Design Level, and a Recommended Plan of Remediation. This document is a combined Engineering and Planning document and shall also serve as the Environmental Impact Statement.

5. RISKS / PROJECT CONSIDERATIONS:

- A. Catastrophic Failure: The failure mechanisms identified for Dover Dam could cause sudden, catastrophic release of flood waters which would inundate populated areas.
- B. Project Complexity: The Evaluation Report is moderately complex, however, the recommended plan could vary in complexity.
- C. Crucial Design Features: Hydrologic and hydraulic modeling of the flows and stability of the dam are the crucial design features for the report.

6. PROJECT DELIVERY TEAM:

The PDT is ultimately responsible for the quality of the design, and consequently, the quality of the DSAP Evaluation Report. The Lead Engineer, as well as all PDT members, must encourage and facilitate communication among the team to ensure design compatibility and homogeneity. The PDT shall consist of the following members and disciplines:

Rodney G. Cremeans	CELRH-PM-PP-P	Project Manager
Scott A. Wheeler	CELRH-EC-DS	Lead (Structural) Engineer
Michael S. McCray	CELRH-EC-GG	Geology
Joan B. St. Clair	CELRH-EC-GG	Materials
Seth C. Lyle	CELRH-EC-GS	Soils
Stephen R. Stout	CELRH-EC-WH	Hydrology
Theodore W. Hamb	CELRH-EC-WH	Hydraulics
Jeffrey L. Yost	CELRH-EC-DC	Civil Site
Donald A. Whitmore	CELRH-EC-TC	Cost
Nickolas L. McHenry	CELRH-EC-CE	HTRW
Matthew C. Martin	CELRH-EC-MR	Relocations
Jonathan J. Aya-ay	CELRH-PM-PD-R	Environmental
Jami L. Jeffrey	CELRH-PM-PD-F	Economics
Elizabeth Cooper	CELRH-RE-PP	Real Estate

7. DESIGN TEAM REVIEWS:

Due to the compressed schedule for producing this report, there will be no formal intermediate PDT reviews. However, team meetings will be held at a minimum of a biweekly

basis to facilitate adequate communication ensuring all disciplines are working towards completing the report to meet all applicable criteria and provide a clear, concise, and complete product. A formal PDT Review Meeting will be held prior to submitting the draft report for ITR and Public Review. This meeting will be a full day and be held at an off-site location as to minimize distractions and complete the review efficiently. Comments will be compiled and submitted to the PDT after the meeting for incorporation into the draft report.

8. INDEPENDENT TECHNICAL REVIEW TEAM:

The ITRT is responsible for the final review of the DSAP Evaluation Report prior to submission to LRD for review. The ITRT is comprised of individuals that have not worked on the development of the report and who demonstrate a senior-level competence in their design discipline. The ITRT shall consist of the following members and disciplines:

Charles D. Barry	CELRH-EC-GD	Civil Site/Dam Safety (Lead)
Brian Greene	CELRP-TS-DS	Geology
Howard S. Brewster	CELRH-EC-GG	Materials
Michael D. Robinette	CELRH-EC-GS	Soils
Terry M. Sullivan	CELRL-ED-D-S	Structural
James A. Kosky	CELRP-TS-DT	Hydraulics
Jeremy S. Stevenson	CELRH-EC-TC	Cost
Matthew M. Orwig	CELRH-EC-MR	Relocations
Sandy D. Nesmith	CELRH-EC-C-BLN	Construction
Mitchell P. Laird	CELRL-PM-P	Economics
Ray D. Hedrick	CELRN-PM-P	Environmental
Gary M. Walker	CELRH-RE-PP	Real Estate
Christopher E. Abshire	CELRH-OR-TM	Operations

9. ITRT REVIEWS:

Due to the compressed schedule for producing this report, there will be no formal intermediate ITR reviews. However, an ITR kick-off meeting will be held with key members of the PDT, ITRT, and LRD Dam Safety Committee to determine any major flaws or omissions in the report preparation. A formal ITR will be conducted upon publishing of the draft report.

The ITRT will be responsible for ensuring that the DSAP Evaluation Report meets all applicable technical criteria. They will also review the report for completeness and consistency and ensure that it meets the intent of the program.

All comments from ITRT members will be input into DrChecks for review by the appropriate PDT members. ITRT members will be responsible for backchecking their comments in DrChecks and ensuring that the response provided by the PDT fully satisfies their initial comment. Any comments which can not be resolved in a timely manner may be closed out by

the Project Manager or the Lead Engineer and shall be included in the final report with responses from both parties.

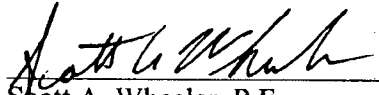
10. QUALITY ASSURANCE:

Quality Assurance, all associated audits, and QA processes will be conducted by the Quality Management Section (EC-MQ).

11. SCHEDULE AND BUDGET:

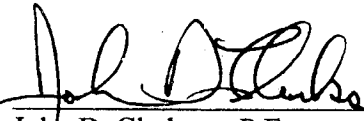
The ITR Kick-Off Meeting is scheduled for 15 August 2006 at Division Office in Cincinnati, OH. The draft report is scheduled to be completed and distributed to all team members 29 November 2006. Funding for labor and travel associated with the Independent Technical Review shall be coordinated through the Project Manager and Lead Engineer.

Prepared by:



Scott A. Wheeler, P.E.
EC-DS
Lead Engineer

Certified by:



John D. Clarkson, P.E.
EC-DS
Chief, Structural Section


STATEMENT OF TECHNICAL REVIEW

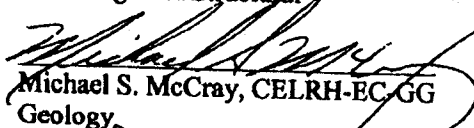
Dover Dam Safety Assurance
DSA Evaluation Report and DEIS
9 January 2007


COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The District has produced for public review the DSA Program Evaluation Report and Draft Environmental Impact Statement for Dover Dam, OH. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy, principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's requirements and is consistent with law and existing Corps policy. The design was accomplished by a District team and the independent technical review was accomplished by an independent Division team.

Design Team


Scott A. Wheeler, CELRH-EC-DS
Lead Engineer/Structural



Michael S. McCray, CELRH-EC-GG
Geology


Seth C. Lyle, CELRH-EC-GS
Soils

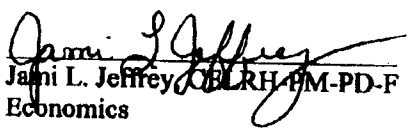

Stephen R. Stout, CELRH-EC-WH
Hydrology

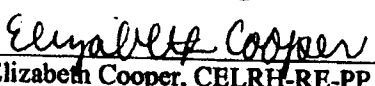

Theodore W. Hamb, CELRH-EC-WH
Hydraulics



Jeffrey L. Yost, CELRH-EC-DC
Civil Site

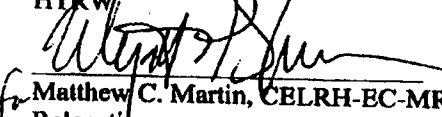

Joan B. St. Clair, CELRH-EC-GG
Materials

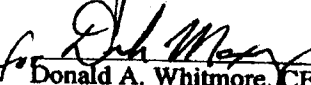

Jonathan J. Aya-ay, CELRH-PM-PD-R
Environmental


Jami L. Jeffrey, CELRH-PM-PD-F
Economics


Elizabeth Cooper, CELRH-RE-PP
Real Estate


Nickolas L. McHenry, CELRH-EC-CE
HTRW


Matthew C. Martin, CELRH-EC-MR
Relocations


Donald A. Whitmore, CELRH-EC-TC
Cost

IRI

Charles D. Barry 11/9/07

Charles D. Barry, CELRH-EC-GD

IRRT Leader

Civil Eng/Dam Safety

Brian H. Green

Brian Green, CELRP-TS-DS

Geology

Michael P. McMorris 1-2-07

Michael P. McMorris, CELRH-EC-DS

Sales

Terry M. Sullivan

Terry M. Sullivan, CELRL-ED-D-S

Structural

James A. Kosky

James A. Kosky, CELRP-TS-DI

Hydraulics (RTS)

Jerome S. Salvemson 11/9/07

Jerome S. Salvemson, CELRH-EC-TC

Coal

Matthew M. O'Neil 11/8/07

Matthew M. O'Neil, CELRH-EC-MR

Relocations

Sandy D. Newirth 11-07

Sandy D. Newirth, CELRH-EC-C-DLN

Construction

Mitchell P. Laird 11/10/07

Mitchell P. Laird, CELRL-FM-P

Economics (RTS)

Christopher E. Adams

Christopher E. Adams, CELRH-OR-TM

Operations

Ray D. Haskins

Ray D. Haskins, CELRN-FM-P

Environmental (RTS)

Gary M. Walker

Gary M. Walker, CELRH-RE-PF

Real Estate

Howard S. Brewster 9 Jan 07

Howard S. Brewster, CELRH-EC-QQ

Materials

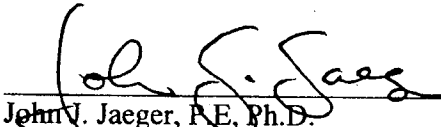
Dover Dam Safety Assurance
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CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

- The Hydraulic ITR team member has significant concerns with Tab I – Hydraulics and Hydrology. These concerns center about the quality of the inundation mapping and are included in Dr. Checks system. The PDT agrees with this statement, however, better mapping is not available at this time. Therefore, the PDT has agreed to remove the inundation mapping from the document to avoid misinterpretation during the public review. The PDT believes this does not affect the formulation of the recommended plan; therefore, these comments are being closed for this review. Additional, more detailed H&H analysis will be completed during the design phase.

As noted above, all concerns resulting from independent technical review of the project have been considered.



John V. Jaeger, P.E., Ph.D.
Chief, Engineering & Construction Division
LRH Dam Safety Officer

10 JANUARY 07

Date

Comment Report: All Comments
 Project: Dover Dam, OH ITR of Evaluation Report
 Review: ITR of Evaluation Report Dover Dam, OH
 Displaying 147 comments.

2125 ms to run this page

Id ▲	Discipline	Section/Figure	Page Number	Line Number
1349657	Real Estate	n/a	n/a	n/a
REP Section 1, para. 1, sentence 2, missing verb.				
Submitted By: Gary Walker (304-529-6934). Submitted On: 12-Dec-06				
1-0	Evaluation Concurred Changed to say "Additionally, a gate closure over Route 800 will be constructed as a conitunation of the l-wall on the right abutment. Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1349658	Real Estate	n/a	n/a	n/a
REP Section 1, para. 4. Suggest adding after 1st sentence "Both the final real property acquisition and the consts are subject to change, even after this report is approved".				
Submitted By: Gary Walker (304-529-6934). Submitted On: 12-Dec-06				
1-0	Evaluation Concurred Sentence added Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1349660	Real Estate	n/a	n/a	n/a
REP Section 4, para. 1, suggest adding to end of sentence ", since operation and maintenance of the project is fully the responsibility of the Federal Government through the Corps of Engineers."				
Submitted By: Gary Walker (304-529-6934). Submitted On: 12-Dec-06				
1-0	Evaluation Concurred Sentence added. Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1349661	Real Estate	n/a	n/a	n/a

REP Section 5, para. 4, 1st sentence. This sentence needs to be removed or re-worded since the Government has the responsibility to furnish LEERD.

Submitted By: Gary Walker (304-529-6934). Submitted On: 12-Dec-06

1-0 Evaluation **Concurred**
Sentence removed.

Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06

1-1 Backcheck Recommendation **Close Comment**
Closed without comment.

Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1349668

Real Estate

n/a

n/a

n/a

REP Section 7, since acquisition of minerals only applies to fee land, suggest moving the sentence about mineral values to the first paragraph where fee lands is discussed.

Submitted By: Gary Walker (304-529-6934). Submitted On: 12-Dec-06

1-0 Evaluation **Concurred**
Sentence moved.

Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06

1-1 Backcheck Recommendation **Close Comment**
Closed without comment.

Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1349696

Real Estate

n/a

n/a

n/a

REP Section 7, second para., 1st sentence. Why mention 1.44 acres of government owned land and not the other 25.4 acres? Does the government own fee or only an access easement to this 1.44 acres? If it is owned in fee then why mention it separately as opposed to the whole 26.84 acres which is being utilized during construction since it will never be a separate tract and its cost is not an issue. I all Government land is fee owned suggest mentioning the total amount of government land to be utilized, but detail information only about lands to be acquired.

Submitted By: Gary Walker (304-529-6934). Submitted On: 12-Dec-06

1-0 Evaluation **Concurred**
Section 7, second paragraph, 1st sentence removed. Paragraph now begins with "Approximately 10.72 acres of privately-owned lands will be acquired..."

Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06

1-1 Backcheck Recommendation **Close Comment**
Closed without comment.

Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1350613

Real Estate

n/a

n/a

n/a

REP Section 7, para. 2, Justification for perpetual road easement. In Section 1 it state a need for access roads in order to allow for construction. The minimun estate for only construction would be a temporary easement. Does the Government have a need to take on continued ownership of these roads which will cross private lands? What now requires continued use of these roads for the operation and maintenance of the project? State in the report the

justification for the permanent easements. Last sentence in the paragraph should be re-worded or deleted.

Submitted By: Gary Walker (304-529-6934). Submitted On: 13-Dec-06

1-0	<p>Evaluation Concurred</p> <p>Dover team members and Operations division have determined that the minimum estate required for the Dover project is standard perpetual access road easement. The last sentence has been changed to say "Access to the left descending bank of the dam is inadequate. Therefore, perpetual access road easements will be needed in order to allow for the operation and maintenance of the dam."</p> <p>Submitted By: <u>Elizabeth Cooper</u> ((304)399-6935) Submitted On: 04-Jan-07</p>
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p> <p>Submitted By: <u>Gary Walker</u> (304-529-6934) Submitted On: 08-Jan-07</p>
Current Comment Status: Comment Closed	

1350743	Real Estate	n/a	n/a	n/a
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REP Section 9. Suggest ditching Exhibit 3 and referencing Appendix G, the HTRW section of the report for further HTRW details. It is difficult to determine whether the HTRW areas of concern shown on Exhibit III-1 in Appendix G are located on Government owned or privately owned lands. Identify what properties they are located on. Since the Government has the responsibility to furnish LERRD, will cleanup of any privately owned land be the sole responsibility of the Government? If CERCLA or non-CERCLA contamination is discovered on privately owned land will an effort be made to avoid the area or have the responsible party clean up prior to the acquisition of the land? Have estimated clean-up costs been included in the baseline cost estimate? Given that we are dealing with railroad property, the first part of the last sentence seems presumptuous. Suggest removing.

Submitted By: Gary Walker (304-529-6934). Submitted On: 13-Dec-06

1-0	<p>Evaluation Concurred</p> <p>Exhibit 3 deleted - now references Appendix G. Sentence added - Under no circumstances will property be acquired prior to clearance of any CERCLA concerns. The clean-up costs have not been included in the baseline. The first part of the last sentence is deleted.</p> <p>Submitted By: <u>Elizabeth Cooper</u> ((304)399-6935) Submitted On: 03-Jan-07</p>
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p> <p>Submitted By: <u>Gary Walker</u> (304-529-6934) Submitted On: 08-Jan-07</p>
Current Comment Status: Comment Closed	

1350753	Real Estate	n/a	n/a	n/a
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REP Section 10. Make first sentence in paragraph 1 current. Indent 2nd paragraph.

Submitted By: Gary Walker (304-529-6934). Submitted On: 13-Dec-06

1-0	<p>Evaluation Concurred</p> <p>Section 10 1st sentence now says "The U.S. Army Corps of Engineers has prepared an ..." Section 10 2nd paragraph indented.</p> <p>Submitted By: <u>Elizabeth Cooper</u> ((304)399-6935) Submitted On: 20-Dec-06</p>
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p> <p>Submitted By: <u>Gary Walker</u> (304-529-6934) Submitted On: 08-Jan-07</p>
Current Comment Status: Comment Closed	

1350758	Real Estate	n/a	n/a	n/a
REP. Add recommendation statement that the REP be approved for land and interests contained herein. Submitted By: Gary Walker (304-529-6934). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred "It is requested that this REP be approved for land and interests contained herein" added as the first sentence of Section 13. Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 20-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1350768	Real Estate	n/a	n/a	n/a
REP and Cost. The \$155K real estate cost estimate in the REP does not match the \$230,625 in the 01 account of the baseline cost estimate. Submitted By: Gary Walker (304-529-6934). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred All inundation maps were developed with 30 meter USGS Grid Elevation data. This data does not match the USGS quad sheets in every location. Maps were used for feasibility planning purposes and will be updated for emergency management uses during the DDR phase of this project. During the DDR phase of the project additional LIDAR data will be available to update these inundation mapping. However this will not effect the selection of the alternative chosen for this project. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Open Comment Response does not answer comment. Submitted By: Gary Walker (304-529-6934) Submitted On: 08-Jan-07			
2-0	Evaluation Concurred The baseline has been changed to \$155,000 for the Real Estate Cost Estimate per conversation with Donald Whitmore on 1/5/07. Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 08-Jan-07			
2-1	Backcheck Recommendation Close Comment Submitted By: Gary Walker (304-529-6934) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1351339	Environmental	n/a	n/a	n/a
Main Report and EIS, Table of Contents. Based on experience with Ohio River Mainstem Study, suggest marking headings with information required for the EIS with an asterisk or other symbol to assure EIS reviewers that all the required discussions are there. Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred Table of Contents has been changed to note the sections required for EIS.			

		Submitted By: <u>Sarah Glass</u> (304.399.5863) Submitted On: 28-Dec-06		
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revision 2. Submitted By: <u>Ray Hedrick</u> ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351360	Environmental	n/a	n/a	n/a
Report/EIS Section 2.5, Environmental Consequences. For this report, I would think that a discussion of health and safety would be particularly pertinent. Suggest one be added. Submitted By: <u>Ray Hedrick</u> ((615) 736-5026). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred A discussion of health and safety will be added to this section. Submitted By: <u>Jay Ayaay</u> ((304)528-7472) Submitted On: 04-Jan-07			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revision 2. Submitted By: <u>Ray Hedrick</u> ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351398	Environmental	n/a	n/a	n/a
Appendix H. Title page should read "Environmental", not "Engineering". Submitted By: <u>Ray Hedrick</u> ((615) 736-5026). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred The Appendix H will be renamed "Environmental". Submitted By: <u>Jay Ayaay</u> ((304)528-7472) Submitted On: 08-Jan-07			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revision 2. Submitted By: <u>Ray Hedrick</u> ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351412	Environmental	n/a	n/a	n/a
Report/EIS, Page 2. Penultimate sentence is ambiguous. Please revise for clarity. Submitted By: <u>Ray Hedrick</u> ((615) 736-5026). Submitted On: 13-Dec-06 Revised 13-Dec-06.				
1-0	Evaluation Concurred Sentence has been revised to more clearly describe the additional structures: "The Dover project also includes levees located remotely upstream from the dam at Zoar and Somerdale, as well as three industrial levees to protect the Corundite Refractory at Zoar, the Fairfield Brick Company at Zoarville, and the Norton Chemicals Company at Mineral City. " Submitted By: <u>Sarah Glass</u> (304.399.5863) Submitted On: 28-Dec-06			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revision 2.			

Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1351431	Environmental	n/a	n/a	n/a
Report/EIS, page 5, last sentence and page 7, 1st and 3rd paragraphs. The species list, QHEI data and ICI/IBI data are not listed with the contents of Appendix H. Clarify that they are attachments to the Planning Aid Letter.				
Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06				
Revised 13-Dec-06.				
1-0	Evaluation Concurred Revision made to clarify that the species list, QHEI and ICI/IBI data can be found as an attachment to the Planning Aid letter. Submitted By: Sarah Glass (304.399.5863) Submitted On: 28-Dec-06			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revision 2. Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351460	Environmental	n/a	n/a	n/a
Report/EIS, page 8, last sentence. The detailed recreation data was not included in the version of Appendix H provided for ITR.				
Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred The supporting recreational data will be added to Appendix H. Submitted By: Jay Ayaay ((304)528-7472) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revised document Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351481	Environmental	n/a	n/a	n/a
Report/EIS, Table 3, Alt # 9. In the 3rd column, isn't the statement about the benefits outweighing the costs turned around?				
Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06				
1-0	Evaluation Concurred Revised to clarify that the benefits OF RETAINING THE DAM outweigh the costs. Submitted By: Sarah Glass (304.399.5863) Submitted On: 28-Dec-06			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revision 2. Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351546	Environmental	n/a	n/a	n/a

Report/EIS, page 21, last paragraph. With the possible exception of endangered mussels (on which analysis is incomplete) the EIS documents that there are no significant impacts from the action alternatives, supporting use of an Environmental Assessment as a NEPA document. While downgrading from an EIS to an EA after issuing the NOI and conducting the scoping process is largely uncharted and awkward, a number of experts feel that it can be done. If there are no significant endangered mussel impacts, you might explore helping your schedule by downgrading to an EA and signing a FONSI at District level.

Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06

1-0 Evaluation Concurred

Significant time savings are available to the agency by undertaking concurrent LRD/HQ review of the document or technical aspects of the document during public circulation of the draft. This is the critical path item. Existing HQ guidance provides for HQ/LRD review to begin following the ITR certification. The PDT is pursuing this option. To this point, the time impacts of pursuing the EIS rather than EA has involved a 15-day delay for issuance of the NOI and was not an impact on the project development. LRD/HQ will require 15-30 days of subsequent review of the final report following incorporation of LRD/HQ review comments on the circulated draft. Therefore, time savings for the EA from this point forward in the process may be as much as 15 days or nothing at all. Therefore no impacts to schedule are expected from the procedural requirements of 40 CFR 1506.10. Action by HQ/LRD to undertake concurrent review and to approve the final will drive schedule not NEPA procedure. Currently, the District will provide the circulated draft EIS to LRD/HQ 28MAR2007. LRD/HQ will return any review comments on 25APR2006. Barring significant comments, LRD/HQ will be able to review a final report for approval starting on 25MAY2007. The District concurs with the reviewer's finding that significant impacts were not found during this evaluation. However, the NEPA process is intended to help public officials make decisions that are based on an understanding of consequences. The District elected early in the process to pursue a robust public involvement and disclosure posture. Following the regulations governing the EIS process provide agency decision-makers assurance of a complete vetting of the problem, proposed solutions and their consequences for public and agency consideration. Given the potentially controversial nature of decisions relative to catastrophic flooding, impounding water (raise dam), releasing water (auxiliary spillway) or taking no action (projected dam failure) the District is interested in providing LRD decision-makers with as comprehensive an evaluation process as is available to the Government. However, the current schedule does not anticipate LRD action for this project until 11JUN2007; so the NEPA timeframes could only impact the schedule by 15 days but are not likely to do so at all. There should be no additional delay in the signing of the ROD beyond what is necessary to "approve" the report at LRD. (40 CFR 1505.2, 33 CFR 230.14, EC 1165-2-205/Clarifying Memorandum, Mr. Robert Taylor-13 APR 2006)

Submitted By: Sarah Glass (304.399.5863) Submitted On: 29-Dec-06

1-1 Backcheck Recommendation Close Comment

Obviously, either NEPA document will suffice. It was merely a suggestion, and LRH has the "call".

Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1351560

Environmental

n/a

n/a

n/a

Report/EIS, page 23, "No Action Alternative". It seems logical that downstream riparian forest would be lost in event of a dam failure. If so, add to paragraph.

Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06

1-0 Evaluation Concurred

Response to comment 1351560, 1351762 and 1351774: Under the No action alternative, dam failure resulting from a PMF event would likely have the greatest potential for downstream flooding and damage from scour. The District has added a sentence to this effect in the report to inform the public and decision-makers that less environmentally damaging action alternatives are not available, without speculating about what the impacts would be. The District has not analyzed hydraulic effects or scour downstream beyond the project boundary in this feasibility-level report. Therefore, no information is available to differentiate among the alternative actions

	<p>being proposed with respect to physical effects to habitats downstream. No information is available to the analyst beyond conjecture. The purpose of the EIS/Report as stated in the 40 CFR 1502.1 to insure the policies and goals of NEPA are a part of decision-making and USACE action. Further, the 40 CFR requires the District limit the discussion to that which is "absolutely necessary" to support compliant, consequence-informed decision-making. Therefore, the District believes the omission of downstream scour and habitat impact analysis is appropriate under the circumstances; this owing to the fact that dam failure, under the existing conditions, offers the greatest potential for downstream flooding and damage. This latter point informs the public and decision-makers that less environmentally damaging action alternatives are not available, without speculating about what the impacts would be.</p> <p>Submitted By: Sarah Glass (304.399.5863) Submitted On: 29-Dec-06</p>			
1-1	<p>Backcheck Recommendation Close Comment Confirmed upon review of revision 2.</p> <p>Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07</p>			
	Current Comment Status: Comment Closed			
1351606	Environmental	n/a	n/a	n/a
<p>Report/EIS, comparison table in the Executive Summary and page 24, penultimate paragraph. LRD policy is that a Biological Assessment (BA) needs to accompany a DEIS where TES are thought to be present, and FWS ESA regulations call for that, too. Also, the DEIS cannot adequately disclose endangered species impacts unless it is known whether endangered species are present. This issue has been informally raised with Mr. Peter Dodgion who is talking to the USFWS and LRH OC for a resolution of this issue. Please advise how the issue is resolved.</p> <p>Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06</p> <p>Revised 13-Dec-06.</p>				
1-0	<p>Evaluation Non-concurred Typically there are both procedural and practical reasons to complete the Biological Assessment for T&ES in the feasibility phase with a draft EIS. This serves planning by providing information which aids in alternative selection and development. However, in the case of Dover, this level of detail is not required until later in the planning process. At the feasibility level, the document for Dover demonstrates feasible approaches with contingent cost estimates. Detailed construction information has not been developed, and costs are at a level appropriate for the current planning stage. There is a possibility that clubshell mussels are present, since they are listed for Tuscarawas county. However, information available suggests that it is unlikely that they occur at the project. Given the likelihood of their presence, the FWS and LRD concur that the best course of action is to complete a mussel survey and potentially a Biologically Assessment during a future phase of more detailed planning. LRD supports this approach and assumes these cost risks. In terms of environmental impacts, the alternatives do not distinguish themselves in a way that suggests alternative selection would be driven by Biological Assessment considerations. LRD has the discretion within the regulations to approve a course of action, saving detailed BA/BO considerations for when relevant details of the project are developed. Further, the PDT believes relevant construction features are amendable within current cost contingencies to accommodate reasonable and prudent measures should this judgment prove wrong. Therefore, the District's technical judgment is that the current suite of alternatives represents the reasonable set available, and that the costs/impacts and feasibility of the alternatives are captured within the current analysis. The risks of BA/BO outcomes affecting costs or alternatives are not considered likely and would require technical details out of proportion to the decision before LRD to accomplish. The USFWS concurs in this judgment. The document has been revised to clarify the district's position.</p> <p>Submitted By: Sarah Glass (304.399.5863) Submitted On: 29-Dec-06</p>			
1-1	<p>Backcheck Recommendation Close Comment Seems like a reasonable approach, as long as it's supported by the FWS and LRD.</p> <p>Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07</p>			
	Current Comment Status: Comment Closed			

1351630	Environmental	n/a	n/a	n/a
Report/EIS, page 24, 5th paragraph. The language, "reopen formal consultation" implies formal consultation under Section 7 of the Endangered Species Act has been conducted. If so, discuss it.				
Submitted By: <u>Ray Hedrick</u> ((615) 736-5026). Submitted On: 13-Dec-06				
Revised 13-Dec-06.				
1-0	Evaluation Concurred Revised to clarify that informal consultation will continue through the planning process. Submitted By: <u>Sarah Glass</u> (304.399.5863) Submitted On: 28-Dec-06			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revised document Submitted By: <u>Ray Hedrick</u> ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351762	Environmental	n/a	n/a	n/a
Report/EIS, page 25, No Action Alternative under 2.5.3 and 2.5.4.1. I guess the key word is "construction", but it appears intuitive that catastrophic dam failure under this alternative could have some dramatic effects on wildlife, habitat and aquatic resources. If so, add some discussion.				
Submitted By: <u>Ray Hedrick</u> ((615) 736-5026). Submitted On: 13-Dec-06				
Revised 13-Dec-06.				
1-0	Evaluation Concurred Response to comment 1351560, 1351762 and 1351774: Under the No action alternative, dam failure resulting from a PMF event would likely have the greatest potential for downstream flooding and damage from scour. The District has added a sentence to this effect in the report to inform the public and decision-makers that less environmentally damaging action alternatives are not available, without speculating about what the impacts would be. The District has not analyzed hydraulic effects or scour downstream beyond the project boundary in this feasibility-level report. Therefore, no information is available to differentiate among the alternative actions being proposed with respect to physical effects to habitats downstream. No information is available to the analyst beyond conjecture. The purpose of the EIS/Report as stated in the 40 CFR 1502.1 to insure the policies and goals of NEPA are a part of decision-making and USACE action. Further, the 40 CFR requires the District limit the discussion to that which is "absolutely necessary" to support compliant, consequence-informed decision-making. Therefore, the District believes the omission of downstream scour and habitat impact analysis is appropriate under the circumstances; this owing to the fact that dam failure, under the existing conditions, offers the greatest potential for downstream flooding and damage. This latter point informs the public and decision-makers that less environmentally damaging action alternatives are not available, without speculating about what the impacts would be. Submitted By: <u>Sarah Glass</u> (304.399.5863) Submitted On: 29-Dec-06			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revised document. Submitted By: <u>Ray Hedrick</u> ((615) 736-5026) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1351774	Environmental	n/a	n/a	n/a
Report/EIS, page 29, "No Action Alternative". Again, it appears intuitive that dam failure under this alternative would result in dramatic aesthetic impacts. If so, state it.				

Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06

1-0 Evaluation Concurred

Response to comment 1351560, 1351762 and 1351774: Under the No action alternative, dam failure resulting from a PMF event would likely have the greatest potential for downstream flooding and damage from scour. The District has added a sentence to this effect in the report to inform the public and decision-makers that less environmentally damaging action alternatives are not available, without speculating about what the impacts would be. The District has not analyzed hydraulic effects or scour downstream beyond the project boundary in this feasibility-level report. Therefore, no information is available to differentiate among the alternative actions being proposed with respect to physical effects to habitats downstream. No information is available to the analyst beyond conjecture. The purpose of the EIS/Report as stated in the 40 CFR 1502.1 to insure the policies and goals of NEPA are a part of decision-making and USACE action. Further, the 40 CFR requires the District limit the discussion to that which is "absolutely necessary" to support compliant, consequence-informed decision-making. Therefore, the District believes the omission of downstream scour and habitat impact analysis is appropriate under the circumstances; this owing to the fact that dam failure, under the existing conditions, offers the greatest potential for downstream flooding and damage. This latter point informs the public and decision-makers that less environmentally damaging action alternatives are not available, without speculating about what the impacts would be.

Submitted By: Sarah Glass (304.399.5863) Submitted On: 29-Dec-06

1-1 Backcheck Recommendation Close Comment

Confirmed upon review of revised document

Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1351791

Environmental

n/a

n/a

n/a

Report/EIS page 33, Cumulative Impacts. The analysis of cumulative impacts is not up to the current standard. LRD policy is to use the 11 step process from the CEQ guidance (USEPA, EPA 315-R-99-002, May 1999). Set spatial and temporal boundaries and look at other past, present and reasonably foreseeable future actions affecting the same resources.

Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 13-Dec-06

1-0 Evaluation Concurred

No significant cumulative effects were identified in the scoping process. However, the draft will be revised to provide a more detailed discussion of the cumulative effects assessment.

Submitted By: Sarah Glass (304.399.5863) Submitted On: 29-Dec-06

1-1 Backcheck Recommendation Close Comment

The revision appears to meet the spirit, but not the letter of the CEQ 11-step process. Since time is of the essence, I agree to close this comment for the DEIS. However, you need to work up a CEA following USEPA, EPA 315-R-99-002 (May 1999), step-by-step, for the FEIS. Cumulative Impact Evaluation is the hot new area for litigation, and the 11 step process is the LRD standard. It is not difficult to do and will strengthen your document, should someone look for an avenue to litigate.

Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1352236

Environmental

n/a

n/a

n/a

Report/DPR, page 36, 1st paragraph. The referenced scoping comments are not in the version of Appendix H provided for ITR.

Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 14-Dec-06

1-0 Evaluation Concurred

	The public scoping comments were inadvertently left out of the ITR version and will be added.			
	Submitted By: Jay Ayaay ((304)528-7472) Submitted On: 04-Jan-07			
1-1	Backcheck Recommendation Close Comment Confirmed upon review of revised document			
	Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1352244	Environmental	n/a	n/a	n/a
Appendix C, Engineering Appendix, Special Investigations, paragraph 5.8, Environmental Design. The discussion should mention the emerging endangered mussel and ESA compliance issue.				
Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 14-Dec-06				
1-0	Evaluation Concurred This section is being revised by Engineering to reflect the T&ES discussion.			
	Submitted By: Sarah Glass (304.399.5863) Submitted On: 29-Dec-06			
1-1	Backcheck Recommendation Close Comment Revised document was not furnished. Assuming follow-through by the PDT, this issue is resolved.			
	Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1352262	Real Estate	n/a	n/a	n/a
Real Estate Appendix, Section 10. The 1st paragraph needs to be reworded to show that the District has prepared a Draft EIS (rather than "intends to" and that it is integrated with the Draft Evaluation Report. Also, the District has completed a scoping process for the NEPA document which should give a preliminary idea of the public's attitude.				
Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 14-Dec-06				
1-0	Evaluation Concurred Sentenced changed to say "The U.S. Army Corps of Engineers has prepared and Environmental Impact Statement..." Also, this was added "During the scoping process, it was determined that the public had a positive attitude concerning the project."			
	Submitted By: Elizabeth Cooper ((304)399-6935) Submitted On: 03-Jan-07			
1-1	Backcheck Recommendation Open Comment The written responses in Appendix H were virtually all opposed. You need to wordsmith your statement to indicate that the written views were in the minority (if you can truthfully state so) or say that the written response was predominantly negative.			
	Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
1-2	Backcheck Recommendation Close Comment Based on a phone conversation with Elizabeth Cooper, she will wordsmith the statement to indicate that, although the written comments were negative, the majority of the views expressed at the scoping meetings were positive. I consider the issue resolved.			
	Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1352452	Planning - Plan Formulation	n/a	n/a	n/a
Report/EIS, page 35, Section 3.4. Executing a PCA "prior to initiation of construction" intuitively seems late in the game. However, the only regulation that I could find that comes close to addressing the PCA timing is Policy Guidance Letter No. 43 which indicates only that the documentation will include expressions of the sponsor's willingness to cost share.				

Check the timing of PCA execution with your Office of Counsel, and adjust the scheduled execution, if necessary.

Submitted By: Ray Hedrick ((615) 736-5026). Submitted On: 14-Dec-06

1-0	Evaluation Concurred The wording will be revised to state that execution of a PCA will occur prior to acquisition of real estate, which is required, and will occur prior to construction. You are correct in stating that the Evaluation Report needs to document expression of the non-federal partner's willingness to cost share. Evidence supporting this conclusion is provided in Appendix B - Existing Contracts. This has been coordinated with LRH-OC. Submitted By: Rodney Cremeans (304-529-5707) Submitted On: 22-Dec-06
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1-1	Backcheck Recommendation Close Comment Confirmed on review of revised DEIS. Submitted By: Ray Hedrick ((615) 736-5026) Submitted On: 08-Jan-07
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	Current Comment Status: Comment Closed
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1352572	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

This is an overall comment. The H&H appendix is incomplete with Tables and Figures misnumbered and missing. The report is very hard to follow and does not follow the IWR Guidelines for Evaluating Modifications of Existing Dams Related to Hydrologic Deficiencies. Example DSA's which were approved before are Tygart DSA, BlueStone Dam and Dewey Dam DSA which were done in the 1990's. Use these prior approved reports as a guide. The report needs major rewrites, format changes and numbers checked.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

Revised 15-Dec-06.

1-0	Evaluation Concurred The H&H appendix was patterned after the Piedmont lake DSA report which was patterned after both the Bluestone and Dewey Lake DSA report. As discussed with this reviewer, time and funding constraints were prevalent during the DSA study, particularly due to limited funding being allocated in CG instead of the normal O & M funding stream for DSA evaluation reports as specified in section 8.12 of EC 1110-2-6061(a draft of ER 1110-2-1156). Pertinent tabulated data, more detailed water surface profiles, and more accurate and detailed inundation maps will be provided in the DDR to ensure that all necessary H&H information is appropriately documented. The District will utilize this ITR reviewer for the DDR to assure continuity and completeness of the H&H documentation Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07
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1-1	Backcheck Recommendation Open Comment After much discussion with the H&H PDT members and rewrites to this report, a more detailed H&H Appendix is necessary in the Detailed Design Report (DDR). This was brought to the attention of the PDT team and is documented in the certification of ITR significant concerns. Submitted By: James Kosky (412-395-7346) Submitted On: 10-Jan-07
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2-0	Evaluation Concurred At this time more detail analysis is planned to be completed during DDR phase. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 10-Jan-07
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	Backcheck not conducted
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	Current Comment Status: Comment Open
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1352577	Structural	n/a	n/a	n/a
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(Document Reference: Main Report)

Main Report, Executive Summary 3, "I-Walls would be 8 feet." Check the stability over 6 foot I-Walls based on recent COE guidelines and recommendations.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

Revised 19-Dec-06.

1-0	Evaluation Concurred Typical sections used have been checked against the recent guidelines (piling size and embedment in particular) and were found to meet them. All appropriate failure modes will also be examined during the design phase, including those found to be present in the IPET report, but are not expected to effect the final design since these are not I-Wall on Levee sections which was the case in New Orleans. A similar wall (in height and geometry) which is under construction in this District were recently checked for these failure modes and was found to be ok with less embedment than the typical sections. Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1352582	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
Main Report, Section 1.81, Dam Failure Analysis, "The time for failure was 0.01 hours and it was assumed that the spillway section would be the monoliths that would fail? Time of failure is only 0.6 minutes? The word "beach" is "breach" throughout the report. Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 14-Dec-06				
1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1352586	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
Appendix C - H&H - paragraph 2. Express elevations as 600 NGVD29 or whatever datum is appropriate and not "600.00". This needs done throughout the report. Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 14-Dec-06				
1-0	Evaluation Concurred A section was added in the main report to address this issue in the revised DSA report Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment			

Closed without comment.				
Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1352593	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
Table of Contents revisit and check spelling and index. Watered=Watershed; Figure 3 listed twice in "Listing of Figures"				
Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 14-Dec-06				
Revised 19-Dec-06.				
1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1352605	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
H&H Appendix, Section 1.2, Dam., last sentence should be two to one foot vertical. Also need table of Pertinent Data like in IWR guidelines.				
Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 14-Dec-06				
1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 10-Jan-07			
Current Comment Status: Comment Closed				
1352621	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
H&H Appendix C, page 3, 1., Spillway. Old DM shows ogee center spillway not saddle type. Check all numbers against old DM and prior reports and what is actually out there.				
Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 14-Dec-06				
Revised 15-Dec-06.				
1-0	Evaluation Concurred These changes were made for the revised DSA report.			

Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1352626	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
H&H Appendix C, Section 1.51, Topography, difficult to read and needs rewritten. Use old DM as example or prior DSA reports. Too much information in one big paragraph.				
Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06				
Revised 19-Dec-06.				
1-0	Evaluation Concurred These changes were made for the revised DSA report			
Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1352632	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
H&H Appendix C, Section 1.5.2, Precipitation Characteristics, Rewrite section, hard to follow.				
Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06				
Revised 15-Dec-06.				
1-0	Evaluation Concurred Concur - The write-up on evaporation needed some work. It was revised to the following: Experiments to determine the amounts of evaporation from exposed water surfaces have been made at Wooster, Coshocton, Charles Mill Dam and Senecaville Dam. The tests include periods from April to November and the monthly average evaporation ranged from 2.34 inches in October to 6.17 inches in July. The minimum for any month was 1.0 inches. For the six-month period, May to October, inclusive the average evaporation for the basin was 4.40 inches. The total evaporation for the Muskingum Basin is probably about 36 inches from a free water surface. Evaporation of water from ground and vegetation surfaces are less than from a free water surface and varies from year to year in accordance with the climatic conditions which prevail. For this basin it probably averages between 25 and 30 inches per annum.			
Submitted By: Stephen Stout (304-399-5601) Submitted On: 09-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1352636	Hydraulics	n/a	n/a	n/a

(Document Reference: H&H Appendix C)

H&H Appendix C, pages 6,7,8, Storms and Floods. Hard to follow. Reword and use old DSA writeups as examples, remove Christmas 2004 and put years with dates under each section.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

Revised 15-Dec-06.

1-0	Evaluation Concurred Concur - The write-up has been revised to the following: Storm and Flood of January 2005. Heavy rainfall on saturated ground was primarily responsible for the flooding conditions experienced by many portions of the Muskingum River Basin. Around 23 December 2004, rainfall of 1 to 2 inches preceded a snow fall of 2 inches to 5 inches. Temperatures remained below normal until the week after December 25, 2004 at which time temperatures were on the rise and snowmelt began saturating the soils. Approximately 4 to 8 inches of rain fell through much of the watershed over an eleven-day period and combined with melting snow, led to large amounts of runoff that eventually flowed directly into the streams where dams are located. Shortly after the rain stopped and the runoff rates began to decrease, the reservoirs reached their peak levels of water retention, or crests. New record pools were established at Atwood, Bolivar, Charles Mill, Dillon, Dover, Mohawk and Wills Creek reservoirs. Nearly all of the other reservoirs reached record pools before attaining their crests between Jan. 14-20. While Wills Creek reached its designed storage capacity before cresting and Beach City nearly reached its capacity, all of the other projects had additional storage capacity when they crested. Submitted By: <u>Stephen Stout</u> (304-399-5601) Submitted On: 09-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
	Current Comment Status: Comment Closed
1352638	Hydraulics n/a n/a n/a

(Document Reference: H&H Appendix C)

H&H Appendix C, Section 2.2, page 8, HMR51 was dated June 1978 not 1987.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
	Current Comment Status: Comment Closed
1352643	Hydraulics n/a n/a n/a

(Document Reference: H&H Appendix C)

H&H Appendix C - page 11, Section 2.2.2, Probable Maximum Flood (PMF) Hydrographs, First sentence incomplete. Second sentence incomplete. What are 1-A and 1-B and 1-C hydrographs? Are they PMF and 25%, 50% increase, and if so label as such. Need better explanation about hydrographs and figures that go with them.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

1-0	Evaluation Concurred Coucur - The write-up was simplified to reflect the abbreviated approach taken based on a previous hydrologic investigation. A previous evaluation of the PMF at Dover determined the "C" hydrographs control over the "A" and "B" hydrographs and are more appropriate for use in the hydrologic analysis and design. Therefore, the current hydrologic investigations utilize the "C" hydrographs at the project sites for pool routing. The "C" hydrograph represents a 150% increase in the unit hydrograph inflow peak with the proper volume adjustment on the drainage area above the pool. Submitted By: <u>Stephen Stout</u> (304-399-5601) Submitted On: 09-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1352658	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, page 11, Section 2.2.2, What is an "X" hydrograph? What is the 2.0 and 3.0 inch hydrographs? This whole section needs rewritten using an old DSA as an example? I cannot follow this section and there are erroneous statements in it? Rewrite and explain PMF, 25% PMF and 50% PMF increases and the distribution of rainfall using HMR52 over the basin.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

Revised 19-Dec-06.

1-0	Evaluation Concurred The write-up has been revised to the following: Unit hydrographs for the drainage area adjacent to the lake, drainage area above the pool and the lake surface were also applied to the PMP. These local hydrographs were then routed and combined in accordance with EM-1110-2-1405 to derive the final project "C" hydrographs shown on Exhibit No. 1, 2, 3 and 4. The application of the PMP to the 6-hour unit hydrographs and the routing of the resulting local hydrographs were developed by using the HEC-HMS computer program. Submitted By: <u>Stephen Stout</u> (304-399-5601) Submitted On: 09-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1352669	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, Figures 1,2,3,4, need better labeled? What do they mean?

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment

Closed without comment.				
Submitted By: James Kosky (412-395-7346) Submitted On: 10-Jan-07				
Current Comment Status: Comment Closed				
1352728	General	n/a	n/a	n/a
<p>There are numerous typographical errors and inconsistencies that are being marked up and will be hand carried to the appropriate PDT member. The lead needs to check across all tabs for the way that documents are referenced (some include EM or ER number, some include title, some include the date, some don't include anything), the way tables are labeled, and pages are numbered to be consistent.</p> <p>Submitted By: Michael Robinette (304-399-5232). Submitted On: 14-Dec-06</p>				
1-0	Evaluation Concurred Inconsistencies in format will be corrected to the extent possible for the public review version. This will be revisited prior to LRD Review to clean up more. Submitted By: Scott Wheeler (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment ok Submitted By: Michael Robinette (304-399-5232) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1352740	Hydraulics	n/a	n/a	n/a
<p>(Document Reference: H&H Appendix C)</p> <p>H&H Appendix C, page 15-16, Section 2.3, What does acronyms MIANO and DEMIA mean?</p> <p>Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06</p>				
1-0	Evaluation Concurred These terms have been dropped from the write-up. Submitted By: Stephen Stout (304-399-5601) Submitted On: 09-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1352752	N/a	Tab II	11	
<p>Section 6, last paragraph, add a table for Ko values and discuss/elaborate how all the charts were used to derive the soil parameters in Table II-4. Marked up table hand-carried to PDT member for edification.</p> <p>Submitted By: Michael Robinette (304-399-5232). Submitted On: 14-Dec-06</p>				
1-0	Evaluation Concurred Table including typical Ko values has been added. Text added to explain/elaborate how the charts were used to derive the soils parameters shown in Table II-4. A marked up copy was received by the reviewer and revisions were made appropriately. Submitted By: Seth Lyle (304-399-5131) Submitted On: 03-Jan-07			
1-1	Backcheck Recommendation Close Comment ok			

Submitted By: Michael Robinette (304-399-5232) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1352753	Geotechnical	Tab II	11	n/a
Section 6, last paragraph, add a table for Ko values and discuss/elaborate how all the charts were used to derive the soil parameters in Table II-4. Marked up table hand-carried to PDT member for edification.				
Submitted By: Michael Robinette (304-399-5232). Submitted On: 14-Dec-06				
1-0	Evaluation Concurred Table added for Ko values, and more detailed discussion on the derivation of soil parameters (as shown in Table II-4) was included. Marked up copy was received and revisions made per review's remarks. Submitted By: Seth Lyle (304-399-5131) Submitted On: 19-Dec-06			
1-1	Backcheck Recommendation Close Comment ok Submitted By: Michael Robinette (304-399-5232) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1352796	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix)				
H&H Appendix C, page 17, Section 2.5, PMF Routing Results - Refer to ResSim as HECResSim and describe it's function and what it does. First sentence incomplete. No Figure 11 or Table 4. Rewrite PMF Routing results showing PMF elevation, Threshold Flood and lesser flood elevations. Describe antecedent flood as 39% 5-day, if that was used and show elevation.				
Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06				
Revised 15-Dec-06.				
1-0	Evaluation Concurred The write-up has been revised to the following: . The PMF was routed using Reservoir Simulation (HECResSim), Hydrologic Engineering Center, Davis, California, to simulate or model the authorized basinwide reservoir operation plan. A HECResSim computer model description is more broadly described in Section 5.1. By routing the antecedent flood event equivalent to 39% of the PMF, the pool level at 192 hours (was determined to be at spillway invert elevation 916.0. The main flood event was routed through the project for each condition and alternative examined. The pool would exceed the top of the existing dam for duration of approximately 15 hours. The routing results are summarized in Table 2. As a result of this analysis, modification of the project would be required to enable it to safely pass the PMF event in accordance with current hydrologic and hydraulic design criteria. Similar routings were also performed for the existing top of dam, elevation 931.3, and for the maximum flood control pool, or spillway crest level, elevation 916.0, as shown in Table 2. Table 2. Dover Lake Routings Flood (% PMF) Peak Inflow (cfs) Peak Outflow (cfs) Maximum Pool (feet) 36 75,000 42,000 916.00 73 191,000 125,000 931.30 100 290,000 207,000 937.39 Submitted By: Stephen Stout (304-399-5601) Submitted On: 09-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1352799	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				

H&H Appendix C, Section 3.2 Freeboard Requirements, ER 1110-8-2 (FR) states 3 feet of freeboard for concrete dams. Cannot waive unless in writing from Headquarters. Was a wind/wave analysis done using ERDC program?

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

Revised 15-Dec-06.

1-0	Evaluation Concurred The 3 feet seems to be excessive for this project and a waiver will be requested after physical modeling is completed during DDR phase. Contingence was included in the cost estimate in case 3 feet of freeboard is ultimately required. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
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1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
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	Current Comment Status: Comment Closed
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1352805	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, page 17, 3. Imminent Failure Flood, Never heard of this in H&H. The top of dam (dam crest) less freeboard is the Threshold Flood which needs analyzed according to IWR guidelines.

Submitted By: James Kosky (412-395-7346). Submitted On: 14-Dec-06

1-0	Evaluation Concurred The term "Imminent Failure Flood" was used through out the Bluestone Lake Dam Safety assurance report in reference to the initiation of structural instability of a concrete gravity dam. The term "Threshold Flood has been used in reference to the geotechnical failure of a earthen embankment dam in other DSA reports. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
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1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
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	Current Comment Status: Comment Closed
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1353089	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix Section 3.3, Routing Results, page 17, There is no Section 8.c.iii as referred to. No Table 4. Also sentence states antecedent flood is 28.5% (0.39X.73) of the PMF and 39% was used before. Need to describe this section better.

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

Revised 15-Dec-06.

1-0	Evaluation Concurred The needed changes were made to the write-up. Submitted By: <u>Stephen Stout</u> (304-399-5601) Submitted On: 09-Jan-07
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1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1353090	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
<p>PMF is routed for 72 hours and that is the duration of the storm. What is the 144 hours referred to throughout the report. Also the antecedent flood should have three conditions looked at: the 30%PMF with 3 dry days; the 39%PMF with 5 dry days this is for the Ohio River Basin based on an NWS study. The peak antecedent condition elevation from this should be used as the final starting elevation. The 50%PMF with 2 days (IWR Guidelines) should also be looked as a reference but does not have to be used as final elevation.</p>				
Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06				
Revised 15-Dec-06.				
1-0	Evaluation Concurred The write-up has been changed to reflect the Probable Maximum Storm approach taken (39% antecedant storm, 5 day dry period and main event) . The 50% Antecedant with 2-day dry before the main event. This will have to be analyzed at a later date.			
Submitted By: Stephen Stout (304-399-5601) Submitted On: 09-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1353091	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
<p>H&H Appendix C, page 19, last sentence, does not give breach parameters. There should be a Table as shown in the IWR guidelines of breach parameters.</p>				
Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06				
Revised 15-Dec-06.				
1-0	Evaluation Concurred A Table was added for the revised DSA report.			
Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1353092	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
<p>H&H Appendix C, p20, 1st sentence, - "earthen" embankment is referred to but this is a concrete dam. Why are the breach parameters based on an earthen dam?</p>				

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

Revised 15-Dec-06.

1-0	Evaluation Concurred The breach parameters were not based on a earthen embankment section was revised. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1353093	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H appendix C, page 20, Paragraph 2, Where are Sections 8.b. and Section 8.c.?

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1353095	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, page 18, Section 4.1, 3rd paragraph, Not sure this paragraph is needed and cannot follow what the paragraph is stating.

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

1-0	Evaluation Concurred Paragraph was removed. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1353096	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H appendix C, page 19, The inundation maps and profiles are not referenced as Exhibits in report. The profiles are not referenced as Exhibits in appendix.

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

Revised 19-Dec-06.

1-0	Evaluation Concurred These changes were made for the revised DSA report. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
	Current Comment Status: Comment Closed

1353098	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, page 20-21, Section 5.2, I am not sure why this section is included in the appendix. Will this low area really do this? Where is Figure 12? How much channel storage is this compared to the PMF Event?

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

Revised 15-Dec-06.

1-0	Evaluation Concurred This section was removed for the revised DSA report. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
	Current Comment Status: Comment Closed

1353106	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, Section 5.4, page 21, What does the last three sentences mean in this section? Section is hard to follow, is this supposed to describe the hypothetical failure and downstream limits?

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

1-0	Evaluation Concurred Last three sentences were revised for the revised DSA report. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
	Current Comment Status: Comment Closed

1353118	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, page 22, Section 5.5, Should be using the PMF as the maximum flood and ER states that the PMF needs to be passed through the structure with appropriate freeboard not "Imminent Failure Flood" (59% PMF?) where is this coming from? Need a table showing comparison of all PMF elevations as discussed in the IWR guidelines. This section needs rewritten and revised, it is too hard to follow with all the numbers and hours used at various points?

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

1-0	Evaluation Concurred This has been rewritten. Submitted By: Stephen Stout (304-399-5601) Submitted On: 09-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1353123	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Appendix C)

H&H Appendix C, Section 6, page 23 to 26, Why are we using Bureau of Reclamation procedures when we have IWR guidelines for estimating PAR. Is this a Headquarters decision and waiver?

Submitted By: James Kosky (412-395-7346). Submitted On: 15-Dec-06

1-0	Evaluation Concurred This method was recommended described by the Economics ITR team member. This was the procedure that the PAR Team suggested to be used. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 10-Jan-07
Current Comment Status: Comment Closed	

1354976	Geotechnical	n/a	Page 1. Para. 1.1	n/a
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The current PTI Manual should be included in the list of References. It is later cited in Page 26, Para. 11.3

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0	Evaluation Concurred The current PTI Manual will be added as a reference. Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07
Current Comment Status: Comment Closed	

1354980	Geotechnical	n/a	Page 2. Para. 2.2	n/a
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The first paragraph makes reference to the project foundation reports and that all concrete monolith were founded on sound bedrock. However there is no mention of when the project was built. Could this information be briefly addressed in the beginning of this report? Or the reader should be referenced to some other report section.

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0	Evaluation Concurred The section of the main report that includes general statistics on the dam including the date of construction will be referenced. Submitted By: <u>Michael McCray (304-529-5395)</u> Submitted On: 08-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Brian Greene (412-395-7323)</u> Submitted On: 08-Jan-07
Current Comment Status: Comment Closed	

1354981	Geotechnical	n/a	Page 2. Para. 2.2	n/a
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The last sentence mentions that the groundwater surface was found to be high in the abutments prior to construction of the dam. When was the dam constructed, and what was the impact of construction on groundwater? At what approximate elevation is it found today in the vicinity of the abutments (if known)? I do see that there is a later Para in the report addressing groundwater (Para 6.3). This could be referenced.

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0	Evaluation Concurred (Para 6.3) will be referenced. Submitted By: <u>Michael McCray (304-529-5395)</u> Submitted On: 22-Dec-06
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Brian Greene (412-395-7323)</u> Submitted On: 08-Jan-07
Current Comment Status: Comment Closed	

1354983	Geotechnical	n/a	Page 3. Para. 2.2	n/a
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Multiple minor faults are referenced. Are these of the thrust fault type also?

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0	Evaluation Concurred No detailed data as of yet can be found in regard to the minor faults. We will continue looking and any information found will be added to the evaluation report or the Design Document Report (DDR). Submitted By: <u>Michael McCray (304-529-5395)</u> Submitted On: 08-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Brian Greene (412-395-7323)</u> Submitted On: 08-Jan-07
Current Comment Status: Comment Closed	

1354985	Geotechnical	n/a	Page 3. Para. 2.3	n/a
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Is the 20 deep key at the upstream heel of the dam reinforced? If so, suggest stating in the text. I note later in the report that under shear strength testing there is reference to shear strength of the concrete key lift joint being "controlled by rebar" suggesting that there is reinforcing.

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0	Evaluation Concurred Text will be added to reflect that the key is reinforced with rebar. Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1354989	Geotechnical	n/a	Page 3. Para. 2.3	n/a
For the benefit of the non-geologist reviewer it might be clarified that a "reverse fault" is the same as a thrust fault just that the fault plane is at a higher angle. As it is known to geologists and engineering geologists, both thrust faults and reverse faults form as the result of compressional stress regimes. Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred Reverse fault will be more clearly described. Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1355001	Geotechnical	n/a	Pages 3 and 4. Para. 2.3	n/a
For the individual monolith foundations and foundation rock units described, there should be some reference to the geologic cross sections in this report. Similarly, the faulting described should make reference to Exhibit II-8 Map of Faults and Joints. Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred The exhibit references will be added. Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1355002	Geotechnical	n/a	Page 5. Para. 2.4	n/a
For the studies of seismicity, was a seismic source zone identified (such as the Anna, Ohio seismic source zone) to generate the OBE of a magnitude 5.2 earthquake and MCE 5.5 events? Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred Seismic source zones such as Anna, Ohio, Western New York, Northeast Kentucky, Giles Co., Virginia, Eastern Tennessee, New Madrid, etc. were identified and their effects were estimated at the project site. These effects were compared to "background" seismicity that occurs outside of commonly defined source zones. The most severe of the two scenarios was used to develop			

	the OBE and MCE parameters.			
	Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1355004	Geotechnical	n/a	Page 6. Para. 4.2.1	n/a
Truly excellent core recovery was achieved in the 2004 drilling program on the abutments (only 0.3% loss or 2.8 feet lost in 839.8 feet of total rock cored). It is mentioned that 4-inch rock coring was performed. Was the excellent core recovery due to use of a triple tube core barrel? If so, this would be useful to state in the report.				
Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred The core barrel was not a triple tube but the barrel description will be added, "5ft Hoffman double tube with split inner barrel".			
	Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1355008	Geotechnical	n/a	Page 6. Para. 5	n/a
I might suggest stating in this section of the report that the testing lab was Corps validated by ERDC if that was the case when the rock testing was performed for this project.				
Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred Text will be added stating that the rock testing was done at an ERDC validated lab.			
	Submitted By: Michael McCray (304-529-5395) Submitted On: 08-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1355010	Geotechnical	n/a	Page 8. Para. 5.1	n/a
It is stated that a total of 42 direct shear tests were run on core samples which represent natural fractures. Am I correct in understanding that the source of these samples were the 4-inch core samples obtained from the 2004 drilling program? If this is the case, you might clarify this here in the report section on testing. Same question of the 45 direct shear tests on intact foundation rock (Para 5.2); 30 smooth sawn surface shear strength tests (Para. 5.3); and subsequent testing described in Para's 5.4 and 5.5.				
Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred Text will be added to clarify which drilling program the tested samples came from.			
	Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06			

1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: <u>Brian Greene</u> (412-395-7323) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1355012	Geotechnical	n/a	Page 11. Para. 5.7	n/a
<p>From an examination of Exhibit No. 8 it appears the orientation of the fault downstream of Monolith 5 would preclude an adverse failure plane developing through the passive wedge. The strike of the fault is upstream-downstream as opposed to cross valley with and adverse upstream dip. Was this taken into consideration in the analyses? The fault below Monolith 7 appears to have a much more adverse orientation and poses the worst case as far as failure plane selection.</p> <p>Submitted By: <u>Brian Greene</u> (412-395-7323). Submitted On: 18-Dec-06</p>				
1-0	Evaluation Concurred The fault in front of Monolith 5 was projected from foundation reports of the adjacent training wall monolith's because no detailed top of rock mapping exists out side of the monoliths footprint. For evaluation purposes an adverse orientation was assumed for the fault, knowing that if the monolith showed instability further investigations in this area would be needed to substantiate the actual strike and dip if possible. Stability analysis of this monolith using the worst case orientation has shown Monolith 5 to be stable. A note will be added to the drawing explaining how the fault orientation was established.			
Submitted By: <u>Michael McCray</u> (304-529-5395) Submitted On: 08-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: <u>Brian Greene</u> (412-395-7323) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1355015	Geotechnical	n/a	Page 19. Para. 8	n/a
<p>Reference the discussion of drain efficiency and the decision for the 1977 stability reanalysis to deem the drains to be non functional. Has there been any maintenance reaming of the foundation drains done over the life of the project? The history of reaming / cleaning should be addressed as it is relevant. It is noted in the top Para. on page 20 that one cleaning was done during the high pool event of 1965. NOTE: I see this comment has been addressed by the 3rd Para on page 20. The reviewer concurs 100 percent that "drains must be well maintained to ensure continued functionality". It is noted that high pressure water jetting was accomplished in 2005 but not followed up with down hole imagery to confirm the results of the effort. This jetting could have some positive effect but I read the report states it is uncertain what degree of uplift reduction was actually realized. It is being assumed in the report that (after cleaning by jetting) the "the drains provide some minimal uplift reduction."</p> <p>Submitted By: <u>Brian Greene</u> (412-395-7323). Submitted On: 18-Dec-06</p>				
1-0	Evaluation Concurred The cleaning of the drains and uplift cells during the 2005 flood have allowed some degree of confidence in applying an uplift reduction (drain efficiency). It should be noted that the drains have only been cleaned once in 2005, the paragraph is confusing and will be rewritten.			
Submitted By: <u>Michael McCray</u> (304-529-5395) Submitted On: 08-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment.			
Submitted By: <u>Brian Greene</u> (412-395-7323) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1355018	Geotechnical	n/a	Page 26. Para. 12.1	n/a
Concur with the recommendation for additional subsurface exploration and testing at the DDR stage, especially drilling at the exact location of monolith M-17.				

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0 Evaluation **Concurred**
Monolith 17 will be drilled as part of the DDR.

Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06

1-1 Backcheck Recommendation **Close Comment**
Closed without comment.

Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1355023

Geotechnical

n/a

EXH 2, Sheet 1 of 4,
Section A-A

n/a

The geologic data depicted on borings plotted on this sheet are very difficult to read at the scale plotted. I realize there is no time to make wholesale changes the drawings, but you may have to add a note on this sheet referencing the reviewers to Exhibit II-4, the individual Graphic Logs and Borings (which are much more legible)

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0 Evaluation **Concurred**
All drawings are being optimized before the next level of review.

Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06

1-1 Backcheck Recommendation **Close Comment**
Closed without comment.

Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1355027

Geotechnical

n/a

EXH 2, Sheet 4 of 4

n/a

It is noted from the Boring Location Plan that two of the monoliths analyzed for stability (M-5 and M-7) had borings taken at the immediate downstream toe of these monoliths. However this was not the case for Monolith 17. Borings were taken upstream and downstream of the monolith but not thru the structure itself. Is the District comfortable that the comparable level of geological detail is available for M-17 as for other monoliths investigated?

Submitted By: Brian Greene (412-395-7323). Submitted On: 18-Dec-06

1-0 Evaluation **Concurred**
For the Evaluation Report this level of data will suffice, but for the DDR Monolith 17 will be drilled.

Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06

1-1 Backcheck Recommendation **Close Comment**
Closed without comment.

Submitted By: Brian Greene (412-395-7323) Submitted On: 08-Jan-07

Current Comment Status: **Comment Closed**

1355031

Geotechnical

n/a

EXH II-7

n/a

From the drawing, it is not clear at what depth the sensing zones of the uplift cells are placed at? Are they at the concrete / rock interface, or below deeper into the rock?

Submitted By: <u>Brian Greene</u> (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred A detail of the uplift cell will be added to the drawing. Submitted By: <u>Michael McCray</u> (304-529-5395) Submitted On: 22-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Brian Greene</u> (412-395-7323) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1355036	Geotechnical	n/a	Combined Minor Comments, Multiple Pages	n/a
<p>Minor Comments: Page 2. Para. 2.2 The statement is made that "The valley consists of approximately 7 feet of alluvial sand and gravel." This would infer that this is the approximate local dept to bedrock as well. If this is in fact the case, this should be so stated. Page 2. Para. 2.2 Does the 1-2 foot thick coal seam have a local name? Can this be used in the report to denote it. This is common in Pittsburgh and in northern West Virginia. For example, the Lower Kittanning Coal. Page 2. Para. 2.2 Delete the minus sign after 20- i.e. 20- to 25 EXH Sheet 3 of 4 Suggest increasing the font size of "Monolith 7" on the cross section (near the base of the dam). Make similar to the Monolith 5 cross section. Page 5. Para. 2.4 2nd Para, Last Sentence. Correct "United Stated" to "United States" Page 5. Para. 3 Top Para, 2nd Sentence. "These concerns, due primarily changes in analysis" Does not read smoothly. Requires revision by the author. Intent is there, just needs minor rewrite. Page 6. Top Para. Reference "....except Monoliths 7-9". Suggest rewording to read: ".....except Monoliths 7 through 9." Page 8. Table II-1 The extreme right side of this table gets cut off in copying (such that Unit Weight values can not be read). Suggest just shifting table to the left even if you have to move the left margin a bit. Page 11. Para 5.7 Last Sentence. Suggest adding the words "potential plane of failure" to the end of the last sentence. To read ".....who selected the most critical plane potential of failure". Page 12. Para. 6.1 First Sentence. It is unclear as to what "Extents of soils have been determined..." means? Suggest a rewording here. Page 12. Para. 6.1 Mention here what year(s) the original dam construction work was done. Page 16. Para. 7.2 A small point, but the use of the term ERDC is an "umbrella term" within the Corps now. One has to specify a particular lab actually doing the testing, which in this case, I believe would be the Coastal & Hydraulics Laboratory of ERDC. Page 22. Para. 11. Add the word "currently" after "The project" To read, "The project currently has 27 strand anchors and....."</p>				
Submitted By: <u>Brian Greene</u> (412-395-7323). Submitted On: 18-Dec-06				
1-0	Evaluation Concurred Revised Sections 6.1 and 7.2 as requested. M. McCray to address remainder of comments. Submitted By: <u>Seth Lyle</u> (304-399-5131) Submitted On: 19-Dec-06			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Brian Greene</u> (412-395-7323) Submitted On: 08-Jan-07			
2-0	Evaluation Concurred All text changes will be made and the nomenclature on the coal seam will be investigated, if the name of the coal seam is not immediately found the change will be made after public review. Submitted By: <u>Michael McCray</u> (304-529-5395) Submitted On: 08-Jan-07			
Backcheck not conducted				
Current Comment Status: Comment Closed				
1355717	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C) Inundation Maps - Maps are poor quality with no match lines and are hard to follow. Mapping does not follow the contours and crosses the stream centerline at multiple locations. Inundation mapping needs to be plotted on new mapping or bad areas need manually corrected following the contour lines. Stream Profiles do not tie into inundation mapping at the tributaries. Individual comments follow which give examples of this.				

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

1-0	<p>Evaluation Concurred</p> <p>All inundation maps where developed with 30 meter USGS Grid Elevation data. This data does not match the USGS quad sheets in every location. Maps where used for feasibility planning purposes and will be updated for emergency management uses during the DDR phase of this project. During the DDR phase of the projec LIDAR data will become available through the State of Ohio's mapping program , and will be used to update these inundation maps. However, this will not affect the selection of the alternative that was recommended for this correction of the hydrologic and structural deficiencies identified in this DSA study.</p> <p>Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07</p>
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1-1	<p>Backcheck Recommendation Open Comment</p> <p>The inundation map issue was brought up to the PDT members and the chain of command and it was decided to not include the maps in the report since they were of poor quality. This issue was documented in the certification of ITR sheet.</p> <p>Submitted By: James Kosky (412-395-7346) Submitted On: 10-Jan-07</p>
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2-0	<p>Evaluation Concurred</p> <p>Inundation maps will be developed in the DDR phase. During DDR phase more accurate mapping will be aviable.</p> <p>Submitted By: Theodore Hamb (304-528-7487) Submitted On: 10-Jan-07</p>
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Backcheck not conducted

Current Comment Status: **Comment Open**

1355753	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Inundation Maps)

Inundation Maps - Here are some examples of the inundation mapping not following contours and the stream. Dover Dam SE - Mile 61; Dover Dam SW - Mile 59 and 60-61; New Philadelphia NW - Mile 58; New Philidelphia NE - Mile 53; New Philadelphia SE - Mile 43-47; Gnadenhutten NW - Mile 34-39; New Comerstown NE - Mile 32-33; New Comerstown SE - Mile 27-31; New Comerstown SW - Mile 23-26; Fresno SW - Mile 13 White eyes Creek; Fresno NW - White Creek; Coshocton SE - Mile 12; Coshocton SW - Mile 2-6; Randle SE - near Roscoe Basin; Will Creek NW - Mile 100-101. These are a few examples.

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

1-0	<p>Evaluation Concurred</p> <p>Response All inundation maps where developed with 30 meter USGS Grid Elevation data. This data does not match the USGS quad sheets in every location. Maps where used for feasibility planning purposes and will be updated for emergency management uses during the DDR phase of this project. During the DDR phase of the project additional LIDAR data will be available to update these inundation mapping. However this will not effect the selection of the alternative chosen for this project.</p> <p>Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07</p>
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1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p> <p>Submitted By: James Kosky (412-395-7346) Submitted On: 10-Jan-07</p>
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Current Comment Status: **Comment Closed**

1355769	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Inundation Maps)

Inundation mapping - Here are some more examples of not following contours or outside the stream channel. Conesville NE - Mile 97 an 99-100; Conesville SW - Mile 91-93; Conesville SE - Mile 94-96; Trinway SE - area around

Trinway; Adamsville NW - Mile 83; Adamsville SW - 79-82; Zanesville East NW - Mile 71; Zanesville West SE - Mile 74-76; Zanesville East SW - Mile 71; Zanesville East SE - near Salt Creek; Philo NE - Mile 63-67; Philo SE - Mile 61; Rokeby Lock NE - Mile 52 and 57; Rokeby Lock SE - Mile 51-52; McConnellsville SW - Mile 47-50; Stockport NW - Mile 45-47; Stockport NE - Mile 41-44; Stockport SE - Mile 36-41; Beverly NW - Mile 29-31; Beverly NE - Mile 26; Beverly SE - Mile 23 reach; Lowell SW - Mile 19-20; Lowell SE - Mile 14-15; Lower Salem SW - Mile 12; Marietta SW - Mile 0-1 is missing. Need to manually fix or use better mapping.

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

1-0 Evaluation Concurred

All inundation maps where developed with 30 meter USGS Grid Elevation data. This data does not match the USGS quad sheets in every location. Maps where used for feasibility planning purposes and will be updated for emergency management uses during the DDR phase of this project. During the DDR phase of the project additional LIDAR data will be available to update these inundation mapping. However this will not effect the selection of the alternative chosen for this project.

Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07

1-1 Backcheck Recommendation Close Comment

Closed without comment.

Submitted By: James Kosky (412-395-7346) Submitted On: 10-Jan-07

Current Comment Status: **Comment Closed**

1355774

Hydraulics

n/a

n/a

n/a

(Document Reference: H&H Inundation Mapping)

Inundation mapping labels do not show with and without failure arrival times. Maps overlap and do not have match lines. The labels also do not show elevations of PMF and Hypothetical (raise dam) alternative.

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

Revised 19-Dec-06.

1-0 Evaluation Concurred

All inundation maps where developed with 30 meter USGS Grid Elevation data. This data does not match the USGS quad sheets in every location. Maps where used for feasibility planning purposes and will be updated for emergency management uses during the DDR phase of this project. During the DDR phase of the project additional LIDAR data will be available to update these inundation mapping. However this will not effect the selection of the alternative chosen for this project.

Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07

1-1 Backcheck Recommendation Close Comment

Closed without comment.

Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07

Current Comment Status: **Comment Closed**

1355777

Hydraulics

n/a

n/a

n/a

(Document Reference: H&H Inundation Mapping)

Inundation Mapping - Why do the labels with arrival times stop at Mile 57 or only 5.55 miles downstream? Also, Mile 57 label does not point to mile 57. Need to provide labels for entire reach.

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

1-0	Evaluation Concurred Additional information will be added to mapping when final production is completed at this time inundation maps are working maps and not intend for anything other then planning purposes. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355779	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
Need to have arrival time table in report which corresponds to inundation mapping.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
Revised 19-Dec-06.				
1-0	Evaluation Concurred A table was developed and is included in the revised DSA report. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355783	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Inundation Mapping)				
The Inundation Mapping stops at about Mile 2 on the Muskingum River, why does it stop? It should go to the Ohio River and then downstream in the Ohio River until the floodwave no longer is present or effective in flooding.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
Revised 19-Dec-06.				
1-0	Evaluation Concurred This was the extent of the mapping download. During the DDR phase, the mapping will extend to the Ohio River. Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355785	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Inundation Mapping)				
Need to put elevations on inundation mapping labels for arrival time that correspond to the PMF for with and without failure.				

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

Revised 19-Dec-06.

1-0	Evaluation Concurred As indicated in the response to 1355777, this will be included in the final inundation maps to be developed during DDR Phase. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
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1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07
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	Current Comment Status: Comment Closed
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1355789	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Stream Profiles)

Title Block - Evalvation is Evaluation. Plate 03P - Tuscarawas River Mile 62-64 does not show profile from the dam to the first section. This needs shown. Problem with profile for the raise dam at mile 62.4.

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

1-0	Evaluation Concurred These Changes were made , and are included in the revised DSA report Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
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1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 10-Jan-07
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	Current Comment Status: Comment Closed
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1355829	Hydraulics	n/a	n/a	n/a
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(Document Reference: H&H Stream Profiles)

Remove Negative Wave off tributary profiles in Title Block. The profiles do not agree with the inundation mapping at the tributaries. The backwater is not properly shown at the tributaries and they need to tie into the stream profiles. Example: Walhonding River profile goes upstream 19 miles on profiles but the inundation maps show it just at the mouth. This is true for all the Tributaries represented by stream profiles.

Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06

Revised 19-Dec-06.

1-0	Evaluation Concurred Additional information will be added to mapping when final production is completed at this time inundation maps are working maps and not intend for anything other then planning purposes. The Negative Wave used on the tributary has been used for years in LRH and other project have been approved with this title block. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07
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1-1	Backcheck Recommendation Close Comment Closed without comment.
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Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07				
Current Comment Status: Comment Closed				
1355842	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Stream Profiles)				
Are there any larger tributaries that should be included in the analysis? Such as BeaverDam Creek, Sugar Creek, Crooked Run; Crooked Creek; Dunlap Creek; Moxahala Creek; Salt Creek; Meigs Creek and Wolf Creek. These seem to be larger tributaries that have some dwellings located at the mouth.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Concurred All mapping issues will be corrected in DDR phase of Project Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355847	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Stream Profiles)				
Wills Creek Stream Profile does not connect in elevation to the inundation mapping.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Concurred All mapping issues will be corrected in DDR phase of Project Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355849	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Stream Profiles)				
Licking River - Inundation mapping does not match profile at the mouth.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Concurred All mapping issues will be corrected in the DDR phase of Project Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				

1355851	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Stream Profiles)				
Recommend putting tributary location on stream profile (like a cross section is labeled but a straight line) where they connect to the major river.				
Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 19-Dec-06				
Revised 19-Dec-06.				
1-0	Evaluation Concurred Time did not permit for this type of detail. When model is updated with new elevation data during the DDR phase of this project the rasplots will be updated with tributaries location and community names, similar to what is produced for FEMA firm maps. Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355925	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
H&H Appendix, page 25 - Teton Failure was not concrete dam failure. Remove last paragraph.				
Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Concurred The Paragraph was removed for the revised DSA report Submitted By: <u>Theodore Hamb</u> (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07			
1-2	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>James Kosky</u> (412-395-7346) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1355938	Hydraulics	n/a	n/a	n/a
(Document Reference: H&H Appendix C)				
Section 5.3, page 21 Travel Time of Flood Wave. Where is Section 10.a? I cannot follow the logic of this paragraph. Refer to past DSA studies for arrival time explanation.				
Submitted By: <u>James Kosky</u> (412-395-7346). Submitted On: 19-Dec-06				
Revised 19-Dec-06.				
1-0	Evaluation Concurred			

	The changes were made for the revised DSA report.			
	Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
	Current Comment Status: Comment Closed			
1356206	Economics	n/a	n/a	n/a
(Document Reference: Appendix I)				
No page numbers or table of contents for report. Page 2, paragraph 1,, last sentence incomplete.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Concurred Page numbers and table of contents has been added.			
	Submitted By: Jami Jeffrey (5347) Submitted On: 03-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: James Kosky (412-395-7346) Submitted On: 09-Jan-07			
	Current Comment Status: Comment Closed			
1356208	Economics	n/a	n/a	n/a
(Document Reference: Appendix I)				
Page 10, paragraph 4, 250 ft2/sec. Velocity is in feet/sec. Also page 13, ft2/sec not sure what this is?				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation For Information Only This is not a velocity metric, this metric is used to measure flood severity, according to "A Procedure for Estimating Loss of Life Caused by Dam Failure", by Wayne J. Graham, dated September 1999. This metric is area/sec and is the main determining factor for flood severity under the previously mentioned guidance.			
	Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: James Kosky (412-395-7346) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1356212	Economics	n/a	n/a	n/a
(Document Reference: Appendix I)				
page 13, loss of life is 49. Is this out of 18,871? Also, the H&H appendix also has economics write up. Recommend all of the economics and loss of life be in the Economics Appendix I. Page 14, Breech is Breach spelling.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Non-concurred			

	<p>This is a very conservative estimate based on warning time. We expect this number to rise when it is updated during the DDR phase. The loss of life number, without consideration of warning time is 18,871. We, however, feel that this number is excessive when give the fact that we are looking at a failure of a concrete gravity structure under PMF conditions and downstream flooding during a PMF event would remove a large number of the PAR from the flood plain prior to failure. Due to resource limitations during the formulation of this project it was determined that H&H would perform the Loss of Life calculations. This step in the process requires a large number of hydraulic parameters that could not be quantified at that time. It was therefore determined that H&H would utilize their technical expertise and experience to determine these parameters. Had there been more time available Plan Formulation would have completed this portion of the report using quantified data. During the DDR phase an updated loss of life calculation will be performed by Plan Formulation. We do not expect that this updated calculation will affect project feasibility and selected alternative.</p> <p>Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p> <p>Submitted By: James Kosky (412-395-7346) Submitted On: 08-Jan-07</p>			
Current Comment Status: Comment Closed				
1356300	Geotechnical	n/a	n/a	n/a
(Document Reference: Geotechnical Appendix)				
Geotechnical Appendix C - Tab II, page 20, Last two sentences, is this the 1965 or 1969 flood?				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	<p>Evaluation Concurred 1969. Text will be corrected.</p> <p>Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p> <p>Submitted By: James Kosky (412-395-7346) Submitted On: 03-Jan-07</p>			
2-0	<p>Evaluation Concurred 1969. Text will be corrected.</p> <p>Submitted By: Michael McCray (304-529-5395) Submitted On: 22-Dec-06</p>			
Backcheck not conducted				
Current Comment Status: Comment Closed				
1356303	Hydraulics	n/a	n/a	n/a
(Document Reference: Main Report)				
page 13, Is time of failure 0.1 hours or .01 hours.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	<p>Evaluation Concurred Time to failure is 0.1 hours (6 minutes) Changes were made</p> <p>Submitted By: Theodore Hamb (304-528-7487) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p>			

Submitted By: James Kosky (412-395-7346) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1356305	Cost Engineering	n/a	n/a	n/a
(Document Reference: Cost Engineering Appendix)				
Cost Engineering Appendix, page 9, Can't read x-axis of Table.				
Submitted By: James Kosky (412-395-7346). Submitted On: 19-Dec-06				
1-0	Evaluation Concurred This was a printing error and has been corrected. Submitted By: Scott Wheeler (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: James Kosky (412-395-7346) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357011	Structural	3.5	n/a	n/a
(Document Reference: Appendix C, Tab 4)				
In addition to including some shear resistance benefit from the new spillway erosion key, in the final design please consider reducing the conservatism in other aspects of the design by considering 3-D effects, keyways between monoliths, some % drain efficiency, fracture and fault alignment relative to monolith joint alignment, etc. to be more realistic.				
Submitted By: Michael Robinette (304-399-5232). Submitted On: 20-Dec-06				
1-0	Evaluation For Information Only 3-D effects and keyways between monoliths are typically not allowed by USACE criteria, however, their use will be explored during the design phase to the extent allowed and possible. The criteria for evaluating drain efficiency as it relates to the fix (anchors, cut-off wall) are detailed in Tab II. The fault alignment shown in Monolith 7 is taken from the foundation reports of Monolith 7 and the spillway apron. Submitted By: Scott Wheeler (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment ok Submitted By: Michael Robinette (304-399-5232) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357018	Structural	3.0	n/a	n/a
(Document Reference: Appendix C, Tab 4)				
Please indicate required safety factors in tables beside those calculated for comparison purposes in each case (bearing, sliding).				
Submitted By: Michael Robinette (304-399-5232). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred A table of required factors of safety is now being included in the report.			

	Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment ok Submitted By: <u>Michael Robinette</u> (304-399-5232) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1357236	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 3)				
par 2.3. Second sentence is missing something, perhaps the word "water." Please review and re-write sentence to ensure that it clearly states the intention of the author.				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred Sentence has been re-written to include ...mixing and/or curing water... Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1357241	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 4)				
It is proposed that river water be disallowed for mixing or curing due to variations in turbidity and quality throughout the year.				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Non-concurred Since the source of concrete is anticipated to be ready mix, the mixing water will likely be from a city water supply or a private well, therefore, the mixing water will not be a river supply. A restriction will be added in this paragraph to disallow the use of river water for mixing. However, It is very likely that the river water will be used for curing. Provisions for this have been noted in this paragraph to require water testing results as submittals in the project specifications. These submittals will be required at regular intervals during concrete production. Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Open Comment If the river water is not specifically disallowed for curing it is suggested that the PDT obtain samples of the river water during times of high turbidity during the DDR phase, run the required tests, and determine whether it will give an acceptable finish. This is important for parpet walls, road closure, or other high visibility concrete, and is unimportant in low visibility concrete. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
2-0	Evaluation Concurred Testing of the river water will be done in the DDR phase to assure suitability for use in curing. Submitted By: <u>Michael McCray</u> (304-529-5395) Submitted On: 08-Jan-07			
2-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			

Current Comment Status: Comment Closed				
1357258	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 5)				
Please describe the Acceptance Limits for ASTM 4791 in a note. It is not immediately clear what the Limit values mean. For example, it is assumed that 0.08 for Midvale means 0.08%; however, not sure how this works with "L:W of 3:1"				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred A note has been added to state the following: The amount of flat or elongated particles, or both, at a 3:1 L/W or W/T ratio is limited to 5% in any size group of aggregates. Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357267	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 5)				
In the table, does NA mean "not applicable" or "not available?" It is assumed to be "not available" since Stockers has a value. Please spell out or include an asterisk / note.				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred The "Not Available" has been spelled out where applicable. Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357278	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 5 and 6)				
Durability factor is very low for most of these sources. Please determine whether it might be feasible to import better, proven aggregates to ensure a long-term durable concrete product, especially anywhere that surfaces are exposed to weathering, and especially considering that the quantities of this more sensitive concrete will be relatively small.				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
Revised 20-Dec-06.				
1-0	Evaluation Concurred It is likely that concrete aggregates will be imported from outside of the normal source area. The aggregates proposed for testing during the DDR phase will be reviewed for available test results (ODOT Acceptance) prior to initiation of any Corps testing. If these sources do not meet the ASTM C 33 and/or ODOT requirements, other sources will be sought further outside of the			

	project area to ensure the best quality concrete aggregates reasonably obtainable.			
	Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1357283	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 6)				
Several of the sources have results that are excessively out of the acceptable limit for tests (besides freeze-thaw which is addressed in another comment). It is proposed that better aggregates be considered, and reflected in the cost estimate.				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred These aggregate test results were only provided for information purposes since they were available from the Piedmont DSA project. The two sources that were selected for "re-testing" were selected because the local ready mix suppliers use these sources. During the DDR Phase for Dover, additional testing will be performed to locate concrete aggregate capable of meeting the quality requirements. This testing has been accounted for in the cost estimate and once test results are available the cost of aggregates and shipping will be better defined.			
	Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			
1357312	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 8)				
Reliance on service records is very risky. The chances of finding concrete placed using similar cement, fly ash, water cement ratios, thermal considerations, etc. are very slim. Also, it is important to consider whether the service of the concrete being examined is comparable to that required of concrete to be placed at the dam (turbulent flowing water, wet-dry, freeze-thaw, etc.). Please consider whether it might be less risky, but still feasible to use better quality aggregates from beyond the immediate region of the project.				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred It is agreed that relying on service record information is risky. The reviewer will take into consideration the differences in materials used and exposures. This paragraph was provided with guidance from EM 1110-2-2000 paragraph 2-3.6 o, which claims that the service performance of concrete is the best indicator of quality. The text will be changed to provide caveats in regard to reliance on service records.			
	Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			
	Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
	Current Comment Status: Comment Closed			

1357375	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 9)				
<p>par 2.4.1.9; Please check the last 2 or 3 sentences in the first subprargaph. It is unclear whether the testing has been done, or still needs to be done. Please revise as appropriate to provide clarity.</p>				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
Revised 20-Dec-06.				
1-0	Evaluation Concurred The text has been changed to a future tense and clarification of existing test results has been provided. Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357381	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 9)				
<p>par 2.4.1.9; 2nd subparagraph; next to last sentence. Please delete "at the Contractor's expense" as this is usually only used in specifications. The purpose of this document is to establish the need and viability of the project.</p>				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred The comment has been deleted. Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357385	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 9)				
<p>par 2.4.1.10; This text again points out the need to be extremely cautious in placing confidence in service records. It is recommended that if suitable aggregates cannot be proven durable by standard testing, importing should be investigated.</p>				
Submitted By: <u>Howard. S Brewster</u> (304-399-5279). Submitted On: 20-Dec-06				
1-0	Evaluation Concurred Caution will be used when reviewing service record structures. Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment.			

Submitted By: <u>Howard. S Brewster (304-399-5279)</u> Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1357408	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V, Page 11)				
Regarding 36-inch stone; Older photographs of the Kimble quarry do not lend support to the operation's ability to produce 36-inch stone. The seam looks blocky and bedded at less than 1-foot thickness between bedding planes. Since this is not a common product for any quarry, it is recommended that all the sources be double-checked for their ability to produce.				
Submitted By: <u>Howard. S Brewster (304-399-5279)</u> . Submitted On: 20-Dec-06				
1-0	Evaluation Concurred All potential sources will be thoroughly investigated during the DDR Phase of this project. The information provided within this document regarding 36-inch stone is based solely on conversations with the producers. Submitted By: <u>Joan Stclair (304-529-5395)</u> Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster (304-399-5279)</u> Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357436	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V)				
Discussion of studies to determine cement source availability: quality, quantity, transport distance, etc. was not found. Please address whether this information should be included in the report, and provide if appropriate.				
Submitted By: <u>Howard. S Brewster (304-399-5279)</u> . Submitted On: 20-Dec-06				
1-0	Evaluation Concurred That information will be provided in the DDR for this project. Project funding and time constraints did not allow for a full investigation of cementitious materials. Submitted By: <u>Joan Stclair (304-529-5395)</u> Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster (304-399-5279)</u> Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1357441	Materials	n/a	n/a	n/a
(Document Reference: Appendix C - Tab V)				
Discussion of studies to determine fly ash source availability: quality, quantity, transport distance, etc. was not found. Please address whether this information should be included in the report, and provide if appropriate.				
Submitted By: <u>Howard. S Brewster (304-399-5279)</u> . Submitted On: 20-Dec-06				
1-0	Evaluation Concurred Investigations for cementitious materials will be performed during the DDR for this project.			

Submitted By: <u>Joan Stclair</u> (304-529-5395) Submitted On: 05-Jan-07				
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Howard. S Brewster</u> (304-399-5279) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1358802	Structural	Paragraphs 3.3 thru 3.6	Appendix C, Tab IV	n/a
Using the stability criteria established in EM 1110-2-2100, Chapter 3, all three monoliths analyzed meet all current stability criteria for all load cases. For example, for Monolith 7, the required factor of safety (reference Table 3-2 in EM 1110-2-2100) for the extreme case is 1.1, which matches the reported results in Table IV-3. The minimum sliding factors of safety in Table 4-1 of EM 1110-2-2200 are superceded by the values in Table 3-2 in EM 1110-2-2100.				
Submitted By: <u>Terry Sullivan</u> (502 315-6299). Submitted On: 21-Dec-06				
Revised 21-Dec-06.				
1-0	Evaluation Non-concurred It is correct that the factors of safety meet the criteria of EM 2100 for all the monoliths. However, those listed for Monolith 7 are the factors of safety with the recommended plan (anchors) in place. An additional table will be included showing the factors of safety for the monolith without the fix as well as a table showing the requirements. Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1358864	Structural	n/a	Appendix C, Tab IV	n/a
Provide a list/summary of the Design Criteria used for these stability calculations, and specifically cite the references from which each were taken.				
Submitted By: <u>Terry Sullivan</u> (502 315-6299). Submitted On: 21-Dec-06				
1-0	Evaluation Concurred References will be added to the text as well as a table listing the design criteria. Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1359068	Structural	n/a	Evaluation Report: page 18	n/a
A better explananation should be provided as why it was recommended not to extend the spillway to reduce the chances of erosion damage during the PMF. "Significantly greater environmental impacts and technical uncertainty" were cited as reasons to select a cutoff wall that is to be constructed below grade. I can think of few construction projects that are constructed with less certainty than cutoff walls. I think it could also be argued that construction of such a wall would also have environmental impacts. Part of my reason for the comment is that CELRL completed a DSA for Rough River Dam in 2004 and chose to extend the spillway rather than install a cutoff wall. This plan was approved and that contract is getting ready to go out for bids now.				

Submitted By: Terry Sullivan (502 315-6299). Submitted On: 21-Dec-06

1-0	<p>Evaluation Non-concurred The environmental team members determined that incremental environmental damages from construction of a cut-off wall with appropriate measures should be significantly less than extension of the spillway due to the probable presence of an endangered mussel downstream of the dam.</p> <p>Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07</p>
1-1	<p>Backcheck Recommendation Open Comment I would be satisfied if the discussion on this subject was expanded in the text of the Evaluation Report.</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07</p>
2-0	<p>Evaluation Concurred The text has been revised to the following: a.) Extend existing stilling basin (up to 150 feet downstream) and construct weir at the downstream end to dissipate energy and protect stream bed from erosion. b.) Construct a concrete cutoff wall at the end of the existing stilling basin to preclude erosion from undermining the existing stilling basin and dam. Due to significantly greater adverse environmental effects, greater potential for impact to endangered mussel species and technical uncertainties associated with extension of the stilling basin (measure a), the cutoff wall (measure b) was selected to protect the dam from potential erosion during flood events which would overtop the spillway. Furthermore, preliminary cost analysis of the two alternatives showed no significant difference. Environmental effects are described in further detail in Section 2.5.</p> <p>Submitted By: <u>Jay Ayaay</u> ((304)528-7472) Submitted On: 09-Jan-07</p>
2-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07</p>
Current Comment Status: Comment Closed	

1359096	Structural	Section 3.5	Appx C, Tab IV (Structural): page 4	n/a
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Much more information should be provided about the concrete structural keys in the bottom of the spillway monoliths. It seems overly conservative to use only the cohesion based on the shear strength of the rebar. For this reason a detailed analysis of the recent core samples taken from the dam should be provided. Additionally the as-built drawings of the keys and monoliths should be included in the review package, too.

Submitted By: Terry Sullivan (502 315-6299). Submitted On: 21-Dec-06

1-0	<p>Evaluation Check and Resolve Testing was not performed on the concrete portions of core samples taken at the dam in 1985 because the sample size was too small. However, the cores indicated non-intact lift joints, cold joints and areas of poor consolidation. A Phi angle of 38o was assigned to the joints in the concrete based on testing done at similar age projects, (Bluestone Dam, Marmet Locks & Dam.) An additional drilling program is planned for the DDR phase in which larger core samples will be taken and testing of the concrete will be completed. As-built drawings were included at the end of PI #1 which was included on the CD package. Page 110 of 141 includes a good cross section of Monolith 7 indicating the key and reinforcing.</p> <p>Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07</p>
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07</p>
Current Comment Status: Comment Closed	

1359102	Structural	Section 3.5	Appx C, Tab IV, page 5	n/a
<p>Explanation should be provided for why strain compatibility between the concrete and the rock needed to be accounted for. A reduction of 50% of the rock's strength (which strength?) was chosen to represent the rock's residual strength. Confirm it is 50% of the peak strength, and justify using this low value. Also justify why is it anticipated that the concrete in the key would reach failure prior to the rock.</p>				
Submitted By: Terry Sullivan (502 315-6299). Submitted On: 21-Dec-06				
1-0	<p>Evaluation Concurred</p> <p>As mentioned in the response to comment #1359096, cohesion in the key was controlled by the reinforcing. Shear deformation needed for the reinforcing steel to reach its peak strength is much less than that of a natural fracture in shale. At the time the steel has reached its peak strength the natural fracture of the shale will not have reached its peak strength, therefore the natural fracture strength that was derived from the plot of the peak shear strengths is not appropriate and it was reduced by 50%. The steel in the reinforced key will reach (peak strength) failure before the natural fracture of the rock because the steel takes less deformation in shear to develop its peak strength than a natural fracture in shale.</p> <p>Submitted By: Scott Wheeler (304-399-5929) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p> <p>Submitted By: Terry Sullivan (502 315-6299) Submitted On: 09-Jan-07</p>			
	Current Comment Status: Comment Closed			
1359105	Structural	Section 3.5, first full paragraph on page 5	Appx C, Tab IV, page 5	n/a
<p>If the spillway is anchored and a cutoff wall is constructed as this Report recommends, then the material that provides a passive wedge for the spillway monoliths would be intact. You in fact state this within this same paragraph, but yet the Report goes forward recommending anchors in the spillway monoliths assuming no such support exists. I believe a more thorough set of analyses should have been completed which would have accounted for all of these partial fixes; instead what you have now is set of recommendations based on worst case scenarios stacked one upon another.</p>				
Submitted By: Terry Sullivan (502 315-6299). Submitted On: 21-Dec-06				
1-0	<p>Evaluation Non-concurred</p> <p>The critical failure plane found for the monolith chosen passes through the reinforced concrete key and goes through a shale layer under the rest of the dam and stilling basin. The failure plane then daylight along a fault at the toe of the stilling basin. The passive wedge was used for the analysis of the existing conditions only and was left in place since the dam reaches its IFF prior to reaching spillway flows which are expected to erode the rock downstream. The location of the cut-off wall is immediately downstream of the stilling basin which is the location of the aforementioned passive wedge and goes below the depth of the failure plane. Therefore the failure plane would now intersect the cut-off wall at the toe of the stilling basin. If the rock downstream of the cut-off wall erodes as expected the only passive resistance downstream of the stilling basin is the cut-off wall. Since the depth of erosion can not be determined without physical modeling, the cut-off wall has not yet been designed for any particular strength. The wording of this paragraph will be changed to better clear this up.</p> <p>Submitted By: Scott Wheeler (304-399-5929) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p> <p>Submitted By: Terry Sullivan (502 315-6299) Submitted On: 09-Jan-07</p>			
	Current Comment Status: Comment Closed			
1359114	Structural	Section 3.7, Stilling Basin	Appx C, Tab IV, page 6	n/a

I find it hard to understand how a stilling basin of a dam in service since 1937(?) has never been subjected to 100% uplift forces. The photo on the cover of the report shows the tailwater covering over the stilling basin, which would result in 100% uplift. What is meant by the phrase, "60% tail water retrogression during spillway flows"? Neither my Hydraulics Engineer here in Louisville nor I know what this means. Perhaps others will also be confused.

Submitted By: Terry Sullivan (502 315-6299). Submitted On: 21-Dec-06

1-0	Evaluation Concurred Tailwater retrogression refers to the stabilizing loads acting on the stilling basin being reduced due to turbulence and hydraulic jump. This is discussed in EM 1110-2-2200 paragraph 3-3. Reference to this paragraph will be added to the text. Uplift on the stilling basin and dam are based on 100% of tailwater at the toe of the stilling basin increasing linearly to 100% headwater at the tip of the tension crack, adjusted for drain efficiency when appropriate. Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

1359624	Structural	Section 4 Seismic Analysis	Appx C - Tab IV	n/a
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Although Dover Dam is a run-of-the-river dam with impoundment occurring only during a flood event, and is located in what you have termed a "low hazard seismic zone", ER 1110-2-1156 paragraph 8.4.1 mandates that the dam be designed such that it survive and remain safe after an MCE event and remain operational with only minor repair after an OBE event. A similar issue is ongoing with Sacramento District with their levees; many of them will fail during an OBE or MCE event with no water on them, and the problem then is how will it be possible to make all of the necessary repairs in time for the annual flood season? What I am saying is this issue needs to be addressed in the Draft Evaluation Report. What is written in this section seems to be in conflict with the Seismicity (Section 2.4) write-up in Tab II: Geotechnical. Correlate these sections. Additionally, the structure's stability must be addressed under seismic loading without flood loading.

Submitted By: Terry Sullivan (502 315-6299). Submitted On: 22-Dec-06

Revised 22-Dec-06.

1-0	Evaluation Concurred Seismic coefficient analysis of Monolith 7 was conducted and it meets criteria for both OBE and MCE without anchors (existing conditions). Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 09-Jan-07
1-1	Backcheck Recommendation Open Comment In the revised writer-up, your reference to "Zone 1" is not correct, as seismic zones have been eliminated by USGS, IBC and all current guidance. Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07
2-0	Evaluation Concurred Text has been revised to state "Since Dover Dam has a low seismic hazard and this report is a feasibility level document, this is an appropriate level of analysis." Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 09-Jan-07
2-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07
Current Comment Status: Comment Closed	

Appx C, Tab IV,

1359685	Structural	n/a	Section 4 Seismic Analysis	n/a
<p>ER 1110-2-1156 and ER 1110-2-1806 require that the dam structure and its components be analyzed for current seismicity. ER 1156 requires in paragraph 8.1.2 that the DSA Program Evaluation Report "shall address the ability or inability of the project to accommodate both current hydrologic/hydraulic and seismic loads." This is required regardless of whether or not a flood loading has impounded a pool. Repeatedly referring to doing such analyses in the "design phase" implies the assumption that there will be a design stage. First a seismic evaluation must be accomplished in this phase.</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299). Submitted On: 22-Dec-06</p> <p>Revised 22-Dec-06.</p>				
1-0	<p>Evaluation Concurred See response to comment #1359624.</p> <p>Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07</p>			
Current Comment Status: Comment Closed				
1359701	Structural	n/a	Appx C, Tab IV, Section 4 Seismic Analysis	n/a
<p>What evidence is presented that proves that a seismic load case would not control the design?</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299). Submitted On: 22-Dec-06</p>				
1-0	<p>Evaluation Concurred See response to comment #1359624.</p> <p>Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p> <p>Submitted By: <u>Terry Sullivan</u> (502 315-6299) Submitted On: 09-Jan-07</p>			
Current Comment Status: Comment Closed				
1362480	General	Appendix C	Page 1 General Paragraph	lines 3 and 4
<p>(Document Reference: Engineering Appendix)</p> <p>The three structures located upstream of Dover are: Bolivar, Atwood, and LEESVILLE. All other comments are editorial in nature and will be forwarded on a marked up copy.</p> <p>Submitted By: <u>Charles Barry</u> (304-399-5224). Submitted On: 29-Dec-06</p> <p>Revised 29-Dec-06.</p>				
1-0	<p>Evaluation Concurred Comments received and will be consolidated with other similar comments and revisions made.</p> <p>Submitted By: <u>Scott Wheeler</u> (304-399-5929) Submitted On: 05-Jan-07</p>			

1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Charles Barry (304-399-5224) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1363557	General	4 Baseline Cost Estimate	5	first sentence
(Document Reference: Appendix C)				
finish the sentence '- the raising of the dam with a drilled shaft cutoff.' for the stilling basin.				
Submitted By: Charles Barry (304-399-5224). Submitted On: 03-Jan-07				
1-0	Evaluation Concurred This sentence has been corrected. Submitted By: Scott Wheeler (304-399-5929) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Charles Barry (304-399-5224) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366141	Economics	n/a	n/a	n/a
The economic evaluation made comparisons of hazards to life and property for events expressed as percentages of the PMF both with and without dam failure, as ER 1110-2-1155 requires to determine the base safety condition in a Phase I analysis. However, estimates of these hazards have only been presented for dam failure during a PMF event. Results of the comparisons, with and without dam failure, should be presented in the report.				
Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred The results of the comparisons between PMF events with and without failure have been added to the appendix. Also, a description of results of other scenarios up to the 100% PMF event have been added. Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366143	Economics	n/a	n/a	n/a
Appendix I, Background. The report states the dam is 103 miles above the confluence of the Tuscarawas and Walhonding rivers. However, page 4 of the Main Report states this distance is 174 miles. This discrepancy should be resolved.				
Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred Appendix I has been amended to reflect a distance of 174 miles. Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment			

Closed without comment.				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1366146	Economics	n/a	n/a	n/a
Appendix I, Background. The report states the height of the dam is 931.5 feet. However, page 2 of the Main Report states the height is 69 feet and page 3 of Tab I of Appendix C states it is 83 feet. These discrepancies should be resolved.				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred The inconsistencies will be corrected prior to the report going out for public review. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366153	Economics	n/a	n/a	n/a
Appendix I, Background. The report states the flood control capacity of the dam is 203,000 acre feet. However, page 3 of Tab I of Appendix C states it is 203,700 acre feet. This discrepancy should be resolved.				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred Appendix I has been changed to state that the flood control capacity of the dam is 203,700 acre feet. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366154	Economics	n/a	n/a	n/a
Appendix I, Damage Survey. A description of the development of the inventory of damageable properties in the study area for HEC-FDA modeling should be included in the report.				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred This description has been added to the report. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1366155	Economics	n/a	n/a	n/a

Appendix I, Damage Survey. The report states that first floor elevations of structures were estimated from HAZUS surface mapping. The FEMA HAZUS model does not have surface mapping itself. It has a tool that will obtain USGS digital elevation model data over the internet, usually at either 30 or 10 meter resolution. Adjustments would need to be made to ground elevations to estimate first floor elevations. A better description of the process used to estimate first floor elevations for the structure inventory should be included in the report.

Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07

1-0 Evaluation Concurred

The description of the processed used to estimate first floor elevations has been clarified in the report.

Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07

1-1 Backcheck Recommendation Close Comment

Clarification regarding origin of ground surface data will also need to be made in the report.

Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 10-Jan-07

Current Comment Status: **Comment Closed**

1366156

Economics

n/a

n/a

n/a

Appendix I, Recreation. The Main Report, page 8, describes recreation opportunities at Dover Dam as somewhat limited and these include fishing and picnicking at the public use area. In light of that, the annual recreation visitation estimates presented in Table 3 of Appendix I appear to be unrealistic. These should be re-visited with consideration of realistic utilization of the available facilities.

Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07

1-0 Evaluation Concurred

Upon consultation with the Muskingum area office we have decided to continue with the numbers as they appear in the report. The numbers are not estimated off of traffic counts as we originally thought they were, and the area resource managers are confident that these numbers adequately reflect the number of visits to Dover Dam each year. The one exception is the year 2000 where the visits total 402,502. In order to bring this number more in line with the others it was thrown out, and replaced with an average of the years 1999 and 2001.

Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07

1-1 Backcheck Recommendation Close Comment

The report should include an explanation for the number of recreation visits given the size and type recreation facilities at the project.

Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 10-Jan-07

Current Comment Status: **Comment Closed**

1366157

Economics

n/a

n/a

n/a

Appendix I, Recreation. A unit day value of \$3.79 per visit was used in the recreation benefit estimate. However, \$3.79 is for 10 UDV points. The interpolated value of 19 points is \$4.15. Calculations should be made again with corrected value assignments.

Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07

1-0 Evaluation Concurred

The numbers have been recalculated with the correct value of \$4.15, and the resulting number has been changed where appropriate throughout the remainder of the report.

Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07

1-1

Backcheck Recommendation Close Comment

Closed without comment.

Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1366159	Economics	n/a	n/a	n/a
<p>Appendix I, Economic Losses with Dam Failure. The report states that Dover Dam is classified as a high hazard dam due to its failure to conform to current design standards related to stability and sliding. Table E-1 and section E-2 of ER 1110-2-1155 shows that a high hazard dam classification is based on certainty in loss of life and other extensive losses and disruption. The report should be modified to reflect this.</p>				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred The report will be modified to reflect the actual definition of a high hazard dam before it is finalized. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 09-Jan-07			
Current Comment Status: Comment Closed				
1366160	Economics	n/a	n/a	n/a
<p>Appendix I, Economic Losses with Dam Failure. The origin of the damage functions used for HEC-FDA modeling should be presented in the report.</p>				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred A paragraph outlining which damage functions employeeed has been added to Appendix I. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366162	Economics	n/a	n/a	n/a
<p>Appendix I, Economic Losses with Dam Failure. There are 10,124 residential structures in the PMF dam failure floodplain, based on data in Table 6. However, text and Table 9 in the Population at Risk section shows that the permanent (residential) PAR is 70,872. This results in 7 persons per household. However, Census data indicates there are between 2.5 and 2.53 persons per household in the study area. This discrepancy should be resolved.</p>				
Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred The number 70,872 has been relabeled "Total Population at Risk" to reflect the fact that it is representative of transient population as well. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07			

Current Comment Status: Comment Closed				
1366164	Economics	n/a	n/a	n/a
<p>Appendix I, Economic Losses with Dam Failure. Tables 6 and 7 indicate there are 10,124 residential structures in the PMF dam failure floodplain and that such an event would cause \$2,035,694 damage to residential property. This results in an average of \$201,000 per residence. Census data indicate that median values for single family homes for counties in the study area are between \$66,800 and \$106,100. Similarly, the average commercial property damage is \$390,700, which appears to be unrealistic. These apparent discrepancies should be resolved.</p> <p>Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07</p>				
1-0	<p>Evaluation Concurred These numbers will be reevaluated before the report is finalized. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 09-Jan-07</p>			
Current Comment Status: Comment Closed				
1366166	Economics	n/a	n/a	n/a
<p>Appendix I, Loss of Life Potential with Dam Failure. A reference is made to 50 feet-squared per second being the breakpoint between high and medium severity flooding. However, the Bureau of Reclamation report shows that this generally determines the break between low and medium severity flood zones. The report should be modified to reflect this.</p> <p>Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07</p>				
1-0	<p>Evaluation Concurred The report has been modified to show that high severity flood designations are those "locations flooded by the near instantaneous failure of a concrete dam, or an earthfill dam that turns into "jello" and goes out in seconds rather than minutes or hours" as stated in the Bureau of Reclamation report. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment The report has also been edited to say this is generally the break between medium and low severity flooding. Submitted By: <u>Mitchell Laird</u> ((502) 315-6874) Submitted On: 08-Jan-07</p>			
Current Comment Status: Comment Closed				
1366167	Economics	n/a	n/a	n/a
<p>Appendix I, Loss of Life Potential with Dam Failure. The report should include a description of how adjusted loss of life, presented in Table 9, was estimated.</p> <p>Submitted By: <u>Mitchell Laird</u> ((502) 315-6874). Submitted On: 05-Jan-07</p>				
1-0	<p>Evaluation Concurred A description of how adjusted loss of life was calculated will be added before the report is finalized. Submitted By: <u>Jami Jeffrey</u> (5347) Submitted On: 05-Jan-07</p>			
1-1	<p>Backcheck Recommendation Close Comment Closed without comment.</p>			

Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 08-Jan-07				
Current Comment Status: Comment Closed				
1366168	Economics	n/a	n/a	n/a
Appendix I, Breach Analysis. Both the text and Table 10 presents construction costs as \$94,446,000. However, Appendix E shows construction costs to be \$95,260,254. This discrepancy should be resolved.				
Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation For Information Only The costs have changed and neither \$94,446,000 or \$95,260,254 are correct. The correct costs and calculations will be included in the report before it goes out for public review. Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366191	Economics	n/a	n/a	n/a
Appendix I. A summary table similar to Table 10 should be presented in FY07 price levels in the final report.				
Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Concurred The summary table in the final report will be presented in FY07 dollars. Submitted By: Jami Jeffrey (5347) Submitted On: 05-Jan-07			
1-1	Backcheck Recommendation Close Comment Closed without comment. Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 08-Jan-07			
Current Comment Status: Comment Closed				
1366499	Hydraulics	n/a	n/a	n/a
Appendix C, Tab 1, Threatened Population. The report states: "As noted in DSO-99-06 closing comments "High Severity flooding is not well represented in the data base" thus the equations, based on flood severity, suggested by the ITR team is not applicable for a concrete gravity dam failure by the 100% PMF event." Pages 23-25 of DSO-99-06 discusses the limitations of the previously developed empirical equations, of which one was used to estimate the Dover Dam loss of life. These limitations include there being many more earthfill than concrete dams and having a small number of dams larger than 49 feet high in the database used to develop the equations. An example based on the St. Francis dam failure, which was a concrete dam, is given in this discussion. It is explained that the DeKay and McClelland "high force" equation, which was used to estimate Dover Dam's LoL, applies to a scenario where trees and some homes remain to provide temporary refuge until flooding recedes, which is not the case for a high velocity flood. The conclusion that the flood severity method not being applicable to a concrete gravity dam is faulty. Austin Dam and St. Francis Dam were concrete gravity dam failures included in the case studies for the flood severity methodology. Guidance is given on page 14 for estimating warning times for concrete dams and on page 35 that a high severity flood results from a near instantaneous failure of a concrete dam. The quoted statement should be removed from Tab 1. Further, either current methodology should be applied to make loss of life estimates or supporting rational should be given for using the older, more deficient methodology seen in Tab 1.				
Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07				
1-0	Evaluation Non-concurred The Austin /St. Francis Dam were during normal weather conditions and not a PMF event such as this report. There for warning times was decreased because a failure was not anticipated.			

	<p>During a major flood event where spillway flow would occur the USACE will monitor the dam very extensively such as the January, 2005 event. On page 39 of the DSO-99-06 "High Severity flooding is not well represented in the data base. In order to estimate loss of life for these events, there is a need to determine the number of population who will remain in the dam failure floodplain after warnings are issued. At this time, no guidance is being provided on this topic" Warning times were determined to be 1 hour after failure has occurred. Also during a Pmf event a portion of the population would evacuate the flood plan because of local flooding issues reducing the loss of life potential.</p> <p>Submitted By: Theodore Hamb (304-528-7487) Submitted On: 09-Jan-07</p>				
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Two objectives in estimating loss of life are to make the most likely estimates of the risks and in doing so to determine the dam hazard classification. Dover is appropriately classified as high hazard. IWR Report 02-R-3, Estimating Life Loss for Dam Safety Risk Assessment, discusses further the shortcomings of the DeKay and McClelland equations. However, there is not a standard Corps life loss method prescribed by guidance and the Dover life loss estimates are considered to be conservative.</p> <p>Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 10-Jan-07</p>				
Current Comment Status: Comment Closed					
1366501	<table border="1"> <tr> <td>Hydraulics</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> </table> <p>Appendix C, Tab 1, Threatened Population. There are concerns about the application of the flood severity loss of life methodology reflected in Table 2. Estimates of transient population were made based on workers entering the study area, as described in Appendix I. However, it is unclear from the report if these are included in PAR in Table 2 and, if so, how an influx of workers while local residents may be leaving the study area during the day was handled in these estimates. This suggests that different PAR estimates should be made for day and night time to avoid over-estimating. The study area below New Philadelphia is assigned medium severity flooding. It seems likely that flooding would attenuate to low severity on the tributaries and prior to reaching the Ohio River on the Muskingum. Fatality rates used in Table 2 for areas below New Philadelphia are only those for vague understanding of the flood severity. Once dam failure occurred there would likely be very strong warnings and media coverage and some would have more precise understanding. These parameters should be revisited if this method is employed.</p> <p>Submitted By: Mitchell Laird ((502) 315-6874). Submitted On: 05-Jan-07</p>	Hydraulics	n/a	n/a	n/a
Hydraulics	n/a	n/a	n/a		
1-0	<p>Evaluation Concurred</p> <p>PAR numbers will be verified with planning and changes will be made to the Dover DSA report.</p> <p>Submitted By: Theodore Hamb (304-528-7487) Submitted On: 09-Jan-07</p>				
1-1	<p>Backcheck Recommendation Close Comment</p> <p>The PAR issue also applies when using the DeKay and McClelland equations.</p> <p>Submitted By: Mitchell Laird ((502) 315-6874) Submitted On: 10-Jan-07</p>				
Current Comment Status: Comment Closed					
1367375	<table border="1"> <tr> <td>Cost Engineering</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> </tr> </table> <p>ITR comments on review of the MII Cost Estimate were provided to Don Whitmore in an MS Word Document on 1/4/07. All comments were deemed "minor" in nature as discussed with Don on 1/5/07.</p> <p>Submitted By: Jeremy Stevenson (304-399-6948). Submitted On: 08-Jan-07</p>	Cost Engineering	n/a	n/a	n/a
Cost Engineering	n/a	n/a	n/a		
1-0	<p>Evaluation Concurred</p> <p>Comments have been received and considered. Appropriate changes have been made.</p> <p>Submitted By: Scott Wheeler (304-399-5929) Submitted On: 08-Jan-07</p>				
1-1	<p>Backcheck Recommendation Close Comment</p> <p>Closed without comment.</p>				

	Submitted By: Jeremy Stevenson (304-399-6948) Submitted On: 12-Jan-07
	Current Comment Status: Comment Closed

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